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ABSTRACT

Providing traditional knowledge and skills, the Colorado Outward Bound School (COBS) program has developed its program around a training phase, an expedition, solo, final expedition, and concluding phase. Intended to be an experiential learning experience that encourages students to become involved in exploring new or unusual areas of their lives, the program aims to place the student in situations that enable him to learn from his experience. This manual provides the information necessary to conduct an Outward Bound course safely and successfully. The manual contains: the objectives of the COBS program; a syllabus of activities that make up a typical Outward Bound course--arrival, training, resupply, expedition, solo, final expedition, marathon, and wrap-up; comments that help guide the instructor in applying the syllabus; an action plan for dealing with emergency situations (steps and techniques); safety policy that must be adhered to; procedures that provide guidelines for activities on a course; expectations for staff; necessary reports; and lesson plans for rock, snow, and ice climbing, peak climbs, backcountry ethic, campcraft, use of the map and compass, zip line and gorge crossing, the ropes course, the run and dip, and the marathon. (NQ)

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INSTRUCTOR'S MANUAL

COLORADO OUTWARD BOUND SCHOOL

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Outward Bound

INSTRUCTOR'S MANUAL

COLORADO OUTWARD BOUND SCHOOL

Revised 1976

Colorado Outward Bound School
Instructor's Manual

Introduction

The Colorado Outward Bound School Instructor's Manual is meant to be a tool for the program staff; its purpose is to provide the information necessary to conduct an Outward Bound course safely and successfully. In it you will find information about the objectives of the Colorado Outward Bound School; a syllabus of activities that make up a typical Outward Bound course; comments that help guide the instructor in the application of the syllabus; expectations for staff; safety policy that must be adhered to; procedures that provide guidelines for activities on a course; and lesson plans to help the instructor convey the various topics.

It has been agreed nationally that there are certain basic elements in any Outward Bound course. The Colorado Outward Bound School supports national Outward Bound policies and has developed its program around the following elements:

Training Phase
Expedition Phase
Solo
Final Expedition
Concluding Phase

The Outward Bound course is meant to be an experiential learning experience that encourages students to become involved in exploring new or unusual areas of their lives. Experiential education makes use of the world that exists outside the classroom; the goal is to place the student in situations that enable him to learn from his experience.

The course should be seen as a continuous experience with a series of peaks and valleys, culminating in the shared excitement of a major peak ascent and the contrasting isolation and deprivation of solo. Throughout the course, periods of intense involvement and physical activity are followed by periods of reflection. Each phase of the course should lead naturally into the next, and effort should be taken to insure that each phase is complete and fully resolved with the students.

The COBS program provides traditional knowledge and skills. We want each student to go away with basic mountaineering and campcraft skills, but beyond these skills it is desired that students will have:

- reached a better understanding of themselves
- learned skills related to decision-making and problem-solving
- gained an awareness and appreciation for the wilderness environment
- come to understand the need for cooperation with others
- had the opportunity of developing personal values and beliefs
- become responsive to the needs of others.

The instructor is a guide, resource person, teacher, counselor, and friend. There is a major responsibility for the safe conduct of the course - but also the need to lead. The method of teaching is not an authoritarian one that denies the student the right to explore on his own. Students are met where they are and an effort is made to encourage them to reach for new goals and growth. The students should be encouraged to establish their own expectations and measure their performances.

The experience should not be a grim one; it does have elements of stress and hardship but these should be generously interspersed with pleasurable experiences. The environment has much to teach us: a harmony, a rhythm, beauty, joy. The Outward Bound instructor needs to assist the student in increasing his awareness of these elements.

Ultimately, it is our responsibility to provide a worthwhile educational experience for each student who attends a course. The instructor will have a great influence on the nature of this experience. This manual should be used in order to insure that each student gets the best possible Outward Bound course.

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COLORADO OUTWARD BOUND SCHOOL

INSTRUCTORS' MANUAL

Part I. THE OUTWARD BOUND COURSE

OBJECTIVES

Key Objective: To broaden enthusiasm for and understanding of self, others and the environment. To enhance interpersonal communication and cooperation.

1. The following are objectives toward which Outward Bound experiences are directed:

   a. Personal development. To extend the individual's self-awareness by identifying his personal limits, by clarifying his needs and goals and by helping him to recognize his role in society and to acknowledge a responsibility to himself and others. To have fun.

   b. Interpersonal effectiveness. To expand the student's capacity for responding to others, to encourage open and effective communications, and to construct cooperative relationships around common projects, involvements and commitments.

   c. Environmental awareness. To enhance a student's understanding of the fragile nature of wild areas and to increase his sense of responsibility for their care and preservation.

   d. Learning. To create and maintain an environment and an attitude where the emphasis is on experimentation and participation in experiential learning. To provide training in the skills essential to living and traveling in the mountains.

   e. Philosophy and values. To provide situations and experiences in which the student can test and refine his personal values and which will stimulate him to examine and articulate his basic beliefs.

2. The following are basic components of the method through which the education objectives are achieved:

Part I. THE OUTWARD BOUND COURSE (continued)
OBJECTIVES (continued)

2. Basic components (continued)

a. Skills training. Developing those skills which enable an individual to function with competence and safety in a particular natural environment; i.e., first aid, campcraft, basic mountaineering.

b. Stress/hardship. Exposing the individual to challenging experiences which compel him to examine his own reactions and responses in new situations requiring action or decision; i.e., rappelling, rock climbing, emergencies.

c. Problem solving. Providing opportunities where individuals or groups need to analyze situations and arrive at solutions; i.e., initiative activities, wilderness travel, emergency evacuation.

d. Reflection. Stimulating individuals to reflect on different life styles and attitudes in ways that provide new insight; i.e., patrol discussions, solo, debriefing.

e. Evaluation. Sharpening the individual's responses so as to encourage critical assessment and constructive action; i.e., individual interviews, patrol discussions and debriefings.

f. Service. Developing a sense of responsibility for others and to the environment through work projects or rescue preparedness.

3. Because of the large number of variables involved, considerable flexibility in the training sequence and even a degree of variation in subject matter is to be expected on Colorado OUTWARD BOUND courses. Certain considerations, however, must be observed:

a. The instructor must provide a balance of training and supervision such that the safety of the students is not compromised. In general as training progresses supervision is relaxed.

b. Not only must we train students in the skills required to operate safely in the wilderness, but Outward Bound has a further commitment to develop an emergency rescue capability in its student groups.

Part I. THE OUTWARD BOUND COURSE (continued)

OBJECTIVES (continued)

3. Mandatory considerations (continued)

c. Outward Bound has an additional commitment to safeguard the wilderness environment we use. Hence, we must provide training in these types of skills to our students as well.

d. For most of our students this will be a foreign but deeply moving experience. The experience is greatly enriched by the informal training in such things as geology, flowers and plants, local history, stars, birds, animals, etc., which the instructor will find himself called upon to provide.

e. The instructor must continually watch for training and practice opportunities throughout the course.

SYLLABUS

This syllabus is a guide for conducting a COBS course. It is divided into sections that are elements of the total Outward Bound experience: Arrival Day, Training Phase, Resupply Day, Expedition Phase, Solo, Final Expedition, Marathon, and Wrap-up. Each section is divided into a general statement that provides information and philosophy; a list of activities that should be covered with comments that provide additional information; and expectations to guide the instructor in evaluating the progress of the patrol.

The syllabus is not a substitute for experience and good judgement in an instructor. It is a guide that will assist the instructor in providing the best possible experience for students attending a COBS course.

Additional information on some activities can be found in the lesson plans section of the manual.

ARRIVAL DAY

Students arrive in the early afternoon. Usually a degree of tension develops on the trip to the program site, primarily due to the student's apprehension about what Outward Bound will demand of him and how capably he will respond. This anxiety should be anticipated by staff and efforts made to alleviate it without dissipating the student's high spirit of adventure.

Forming patrols helps to establish interpersonal relationships and group identity.

The instructor takes the initiative in drawing students out by such simple expediencies as sharing names and initial impressions.

The first impression of the student is an important one and will carry over throughout the course. The instructor should take pains to ensure that the first day is pleasant and does not aggravate the tension that naturally exists.

Much of this first day will be spent in issuing equipment and acquainting students with their style of living for the next three weeks. Whatever is asked of students at this time should not be more than they are ready to give. Particular attention should be paid to how the patrol is functioning together. It is essential

ARRIVAL DAY (continued)

that the instructor be open and willing to share himself and his reactions in order to encourage students in the same openness and sharing.

The primary activity of the first day will be setting up camp and preparing meals in the wilderness. The instructor should be available as an advisor but should begin to encourage students to take responsibility for their own learning. The concept of shared responsibility and cooperation is being implanted at this point and the instructor should be careful to let this develop at its own pace. He should provide continual feedback to the students on their functioning or accomplishments to insure that the necessary skills are being developed on schedule. Get each student to identify the specific expectations with which he came to the course. This might encourage him to look beyond initial ideas which are frequently one-sided or unrealistic.

Activity	Comments
- OB personnel will accompany students on bus from Denver	- Issue journals on bus. Ask students to write down expectations and reason for attending OB
- Introduction by Course Director	- Set the tone for the course - Overall course objectives outlined and written down in journals. Instructor/student contract provides objectives; a possible opportunity for student input at this time. Dispel myths (survival training, boot camp, etc.)
- Assign to patrols - Collect valuables - Issue equipment - Instruct in packing	- Time to engage in a physical activity to facilitate the removal of unnecessary fears and apprehensions
- Instructor's introduction: History, local and OB, route, ecology, course structure, reiterate COBS policy on stimulants and depressants, rescue responsibilities	- Tie expectations and course design to program - Start individual interviews - Much information given on first day will have to be repeated
- Walk to nearby campsite; discuss blister control, temperature control, order of travel group	- Local and natural history break en route

ARRIVAL DAY (continued)

Expectations:

1. Create a warm, accepting atmosphere for students.
2. Introduce students to the mountain environment and Outward Bound.
3. Complete administrative responsibilities.
4. Get to know patrol members, at least their first names.

TRAINING PHASE (3-4 days)

This is a period of instruction and limited activity designed to insure that the participant is physically fit and acquainted with the knowledge and skills necessary to engage in demanding activities. It is also expected that he will be familiar with the educational aims of the experience, school policies, environmental commitments, expedition safety rules, and will begin to become a member of a functioning group. This is the phase of the course when participants are most apprehensive and most in need of experiences that help to orient them to the environment and to build associations with other members of the patrol.

The formal instruction should fit approximately the following time blocks, although the necessary practice sessions may require additional time. The instructor must continually watch for training and practice opportunities throughout the course.

Equipment and clothing (including equipment issue)	2 hours	
First aid	4 hours	(pp. 23-56)
Mountain safety	2 hours	
Campcraft and related skills	2 hours	(pp. 86-93)
Map and compass (not including orienteering course)	3 hours	(pp. 94-97)
Knots, rope handling, and rappelling (not including a rappel)	3 hours	(pp. 59-66)
Backcountry Ethic	2 hours	(pp. 80-85)

Activity	Comments
- Basic mountain rescue: first aid, hasty litter rescue simulation - Safety rules	- Presentation of all mountain skills should be as professional as possible. Test for the ability level of the student on arrival; use, under supervision, those who are

TRAINING PHASE (continued)

Activity	Comments
	already skilled to assist in the teaching of others.
- Interviews	- To establish a personal dialogue with the student the instructor should make himself available and seek to interview each student in whatever way seems convenient or appropriate. By making himself available to listen or provide advice when requested, he builds a level of personal trust.
- Evening get-togethers Discuss: service projects morning readings	- Some thought must be given to timing at this point in the course. With only 21 full days to use and only about 10 available evenings to get together as a group, the instructor and students may wish to structure the evening session.
- Journals	- Journals and various ideas on keeping them should be exchanged to help make this aspect of the course rewarding.
- Mini-solo	- A night alone or even a solitary hour early in the course will promote contemplation and will alleviate apprehension about the solo.

TRAINING PHASE (continued)

Activity	Comments
- Morning reading	- Attempt to find a reading relevant to the point of the day's activities.
- Short expedition: further training in campcraft, knots, belaying, rescue	- Formulate a plan with the students to facilitate effective briefing and debriefing of major activities.
- Expedition planning: route finding, time control, emergency procedures, easy peak climb	- A time to begin the shift from dependency to being independent. Try to discuss the day's activities or a specific problem with the group each day.

Expectations:

1. Students must be instructed in the following areas (minimum level of competence outlined in lesson plans):

   a. First aid (pp. 24-42 should be covered in the training phase; the remaining first aid topics may be omitted at the Course Director's discretion.)
   b. Map and compass (pp. 94-97)
   c. Basic campcraft (pp. 86-93)
   d. Mountain travel (pp. 73-78)
   e. Basic safety rules of Outward Bound (pp. 23-24, 59-60, 69-70, 79, 98, 100, 101, 102, 103)

2. The instructor will have completed:

   a. Initial student interview
   b. Assessment of individual patrol members' physical limitations
   c. Setting tone for course; exploration of OB philosophy
   d. Discuss the contents and use of the first aid kits of the students and instructor

RESUPPLY DAY (repeat at each resupply)

Activity	Comments
- Assess each student's skill level: knots, first aid, campcraft, map and compass	- This is a critical time in the development of the group. The instructor must decide whether or not to organize this

(8)

RESUPPLY DAY (continued)

Activity	Comments
- Provide each student with an evaluation of his performance and guidance for the remainder of the course - Re-issue food and equipment - Rest and reflect	day, to let the students organize it or a combination of both. A prior briefing pointing out the pitfalls and good points of resupply day may greatly help to unify the group. - An open discussion of journals content may help the less creative at this time - A time for rest and reflection in contrast to the intensive movement and activity of the expedition - Provides an opportunity for the instructor to get the patrol working together. By this time food has become a basic need. A good discussion about attitudes toward each other before food is given out, with food as a focus. It may be helpful to talk about it before the actual experience takes place

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Expectations:

1. Encourage communication and cooperation in the whole process of resupply, to develop some sense of the larger community of the course as a whole and of concern for others besides members of one's patrol.

2. To sort out unresolved problems among the students and use the resources of other instructors and the Course Director for getting and providing feedback to individuals and the patrols.

3. To provide each student with some evaluation of his performance and guidance for his functioning on the remainder of the course.

4. To make the collection of fresh rations a learning experience; this may take close supervision from the instructor. Formal effort should be made by the instructor to assist in the menu planning, one place where students do not seem to be able to get along without instructor supervision. (Splitting up fresh food and new rations can be very beneficial in evaluating relationships within the group.)

RESUPPLY DAY (continued)

5. Assess the group development and various individual's roles within the group.

6. A complete medical check of students conducted by the instructor; get the students clean.

7. Check equipment to insure that the students are ready to continue the course.

8. Resupply medical supplies to patrol.

EXPEDITION PHASE (3-8 days)

After the appropriate instruction has taken place, participants will be involved in a series of activities. This is a time of peak experiences and increasing awareness which provides the basis for mutual sharing and close bonding within the patrol. Emphasis is on transferring as much responsibility and decision-making to the student as is possible within the confines of maximum safety. The expeditions may vary in number and length, but the tocal will cover a period of no less than eight days in the field.

This phase consists of either two expeditions with a resupply between or a longer expedition followed by a single resupply either before or after solo. With two expeditions, one is generally considered a mountain expedition either approaching or building up to the Alpine expedition with its major peak climbs. When just one expedition is utilized, the early part of the trip is usually treated as an approach march and conditioning for a major ascent.

During the expedition the amount of activity and distance traveled is regulated so as to permit students to gradually acclimatize and condition themselves for the more demanding challenges ahead.

Activity	Comments
- Expedition	- Avoid simply walking long distances day after day. Attempt to intersperse each

EXPEDITION PHASE (continued)

Activity	Comments
	day with some skills activity
- Mountain travel - Basic back packing - Environmental awareness - Route selection	- Confront the students with the problems of solving mountaineering and interpersonal difficulties. To expedite the situation the instructor may have to assist the students in solving some problem. Begin to prepare students for solo by informal group discussions.
- Rock climbing (pp. 59-66)	- Should be done (with the exception of bouldering) only at areas previously reconnoitered, approved and cleared by supervisory or specialist staff and adequately supervised at the time of use. Emphasis should be on individual challenge and effort with ample difficulty to push the most capable of students to explore his personal limits. Emphasize shared responsibility for safety and the development of trust in others as goals for this activity.
- Minor peak ascents (p. 79)	- Should take place only on peaks that clearly present minimum hazard and require limited technical skill. The patrol should try to stay high, traversing ridges and crossing passes instead of following trails in valleys; guard against lightning hazard in high terrain. - Students can be allowed to travel on their own with adequate checks by the instructor. Such experiences should always be debriefed as soon as possible. It may be possible to establish a base

EXPEDITION PHASE (continued)

Activity	Comments
	camp in one area out of which activities can be conducted.
- Mock rescue	- At least one simulated rescue situation requiring initiative and teamwork should be carried out. This is an opportunity to examine leadership styles and group participation in a stress situation and provides interesting material for discussion. A situation in which to test the effectiveness of first aid preparation.
- Gorge or river crossing (pp. 72, 98 & 99)	- An initiative exercise. It may be real or contrived but the important thing is to be straight with the students and to identify the task with clarity and precision. Students are then left on their own to solve the problem under the supervision of the instructor. Receive criticism on the process and solution after the exercise is complete. An opportunity for rope or log bridges, zip wires or Tyrolean traverses, and a good instructional opportunity as well.
- Night march	- Can either be done as an extended push to reach an established destination or as an alternative to daytime travel. Care must be taken in the choice of terrain and the procedures for keeping the patrol together and keeping track of equipment. This could also be supplemented by a bivouac on a high pass or minor summit if weather and safety permit.

EXPEDITION PHASE (continued)

Activity	Comments
- Service project	- Should be well planned and presented to students. Make it as meaningful as possible; may include repairing trails, bridges, planting trees, restoring campsites, removing trash. Emphasis should be placed on the conservation ethic and personal responsibility for the environment. Avoid busy work.
- Other possible expedition activities	- Mini-solo, orienteering, snow training, sauna, bouldering, rappelling, plant and wildlife study, geology, astronomy, Colorado history
- The Alpine expedition	- The major peak climb should be a demanding and carefully planned event with considerable flexibility in the schedule in case of bad weather or other interruption. Alternative ascents should be available to replace or supplement the primary objective - The ascent should be made the responsibility of the patrol; planning for the ascent, departure, route selection, maintenance of safety procedures and precautions. This is one of the high points of the course and should not be hurried unnecessarily. - Sunrise on the summit, a moonlight climb, or an extended stay on top can provide a memorable experience. - The descent from the summit can be the most hazardous time of the climb, for people are tired, exuberant, and careless. Extreme caution should be exercised and

EXPEDITION PHASE (continued)

Activity	Comments
- The Alpine expedition (cont.)	students reminded that this is the most common time for accidents. - Usually there is a bit of a letdown among the patrol after the peak climb and efforts should be made to move into solo or other activities.

Expectations:

1. Provide the students with the opportunity to experiment with using the skills they learned during the Training Phase and to learn by trial and error how to navigate and exist in the mountain environment.

2. Students should be familiar with the operating procedures essential to the safety of the patrol in all high-risk activities and assuming responsibility under the instructor's supervision for their implementation.

3. Identify any lack of caution or judgemental error, promote the safety consciousness of the patrol.

4. The instructor begins to withdraw from actual decision-making in the patrol and encourages the students to assume responsibility for identifying patrol tasks, assigning duties, and determining the leadership structure.

5. Regular patrol meetings or spontaneous debriefing should be provided and monitored by the instructor. Begin to function together as a team and build supportive relationships with one another.

6. Create an atmosphere within which interaction is encouraged and developed.

7. Service project.

8. Mid-course interview.

SOLO (3 nights) (pp. 103 & 104)

Solo should be presented by the instructor and anticipated by the student as one of the culminating experiences of the course. It may be viewed as the initial step of the individual to reach outside of the support of the course and the patrol.

The most satisfying circumstance for solo is that time immediately following an exciting and strenuous peak ascent in which students have experienced the exhilaration of success and have been pushed to their physical and emotional limits by the challenge and excitement of the climb.

It can be valuable to have patrol members share their expectations and fears about solo with one another and suggest their own approaches to the process of self-appraisal. In this way, the students can be led to identify their own goals and methods of achievement instead of reflecting those of the instructor or Course Director.

Activity	Comments
- Solo briefing	- Students should be made aware of the environmental concerns (in the dispersal of students to so many campsites) and should be encouraged to establish minimal camps - Talk with students about purpose of the solo. Help them set goals. Explain safety consideration, emergency procedure, the use of journals to record thoughts, what equipment they will need. Attempt to experience the basic essentials of life.
- Site selection	- Particularly important is the selection of the solo site care should be taken to select those sites that provide some shelter and concealment as well as room to roam and explore without hazard. Water should also be readily available.

SOLO (continued)

Activity	Comments
	Students should be assured that the instructor will remain in the area and know the location of the camp in case of an emergency.
- Place students	- Accomplish as early in the day as possible so students have time to prepare their site. Try to make the placement unhurried. Take time to look over the site with the student.
- Check daily	- Daily visual check does not have to interfere with solitude. Go quietly and know exact location.
- Remove students	- Take time to talk with individual about the experience. A little fellowship at this time can go a long way. Special attention is given to weakness, dizziness, or disorientation during the walk back to the instructor's camp. Either bring food to student or have small meal prepared for returning students.
- Debriefing	- The first meal after solo provides an opportunity for sharing among the students. Maintain an informal atmosphere. Encourage an exchange of feelings. - The finish and debriefing of solo is an extremely important part of the course and should be treated as such. Students are eager to see the instructor as well as one another and this should be used for all it is worth. A few minutes spent with each student by the instructor can produce significant data for both and an occasion for individual feedback from the instructor.

SOLO (continued)

Activity	Comments
	In any event, the patrol should soon be brought together to review the experience and give an account of their self-examination.

Expectations:

1. Formal briefing of students before solo to insure an understanding of the experience.
2. A thorough preparation of students for solo through the use of mini-solo, discussions.
3. Daily check for safety.
4. Debriefing of individual students and the patrol.

FINAL EXPEDITION (3 days) (pp. 69-78)

The final expedition provides the students with the opportunity of putting into practice all the skills they have learned during the course. Every effort should be made to allow students to fully participate in all aspects of the final planning process. The nature and difficulty of the final is determined by the instructor after considering the strengths and interests of the students. Finals may include activities such as rock climbing, peak climbs (accompanied by an instructor), service projects, environmental study.

Activity	Comments
- Equipment check - Group selection	- The selection of students may be voluntary or based on some notion such as combining students who may profit from the interaction; i.e., weak with strong, quiet with

FINAL EXPEDITION (continued)

Activity	Comments
	outgoing, etc. The object would be to maximize the opportunity for an intense and successful, as well as safe, experience.
- Briefing	- A general briefing is given by the Course Director and an instructor is assigned to each group for a specific briefing and debriefing.
- Expedition plan Route Emergency procedure Escape routes Check points Leadership	- Students should be given as much autonomy as feasible in the planning and enactment of finals, and should be permitted to make mistakes and learn by problem-solving to the extent that it does not affect the safety of the expedition. Students should be encouraged and expected to be self-motivated. A written itinerary is required for each group.
- Debriefing	- The debriefing of the final expedition groups can be one of the major learning experiences of the course. Instructors should combine or share with one another these responsibilities and seek to obtain from students as much information as possible about the style of leadership and decision-making that took place, the mistakes that were made, the interaction among members of the group, and whatever conflicts arose.

Expectations:

1. Assess needs of each individual and assign to a group.

2. Appoint a leader for each group and make sure his role is clearly understood by the group.

FINAL EXPEDITION (continued)

3. Brief students on all material contained in the manual pertaining to expedition safety and specific route.
4. Approve student plans and written itinerary.
5. Check all equipment.

MARATHON (p. 102)

The marathon is an opportunity for personal growth through prolonged physical and mental challenge. The student should be encouraged to push himself, but only to a degree that he himself feels is appropriate, challenging, and rewarding. For some this will mean running to win or to compete with another student; others will take satisfaction from simply completing the route.

Activity	Comments
- Briefing	- The Course Director must make sure that students are briefed on the objectives, the route, and any hazards. - It is helpful for each instructor to prepare his students in advance by presenting the marathon as a growth opportunity rather than a compulsory contest. - Each student should be encouraged to decide for himself how he will run the marathon to obtain the greatest personal benefit.
- Controls	- Manned check points and a staff sweep are required.
- Finish	- The instructor should look for some commendable aspect of each student's performance and make an effort to provide whatever praise is appropriate.

MARATHON (continued)

Expectations:

1. Briefing
2. Check points
3. Feedback to students

WRAP-UP

There should be a relaxed atmosphere in which students are encouraged to bring their experience with the course and fellow students to an effective and satisfying end. This is a time to clean up, settle accounts, and prepare for returning home.

The last night in camp should be planned carefully to prevent a letdown and avoid students leaving the base. Activities involving students as a group or in patrols should be planned and instructors available. A movie, slides, discussions, inter-patrol activities can be helpful. Students will generally be up and off early the next morning.

Activity	Comments
- Student interviews	- Discuss student report. Resolve as much of the experience as possible. Each instructor is expected to provide for student reports and a patrol record and course evaluation. The instructor should have a final interview with each student to summarize his evaluation of the student's performance and provide personal feedback or advice. The student's individual experience is unfinished until this process is completed.
- Patrol debriefing	- The patrol debriefing is one of the most essential activities of the course. It provides the opportunity for the patrol to review expectations and achievements,

WRAP-UP (continued)

Activity	Comments
	resolve individual disagreements, express criticisms and end the course on a positive tone. It is also the last opportunity for sharing and integrating the experience of the course. The instructor should play the key role in raising issues, reviewing events, and encouraging feedback and sharing. The Course Director, an instructor from another patrol or some outsider should share the process to provide objectivity and support for the instructor. Many patrols have some negatives to express, and an effort should be made to get past these complaints to identifying what was positive about the experience and looking forward to the process of returning home.
- Equipment turn-in	- Take time to properly account for all student equipment.
- Course impressions and thank-you letters (p. 105)	- These are important and adequate time must be provided. Instructors should help the students if necessary.
- Closing	- The parting is important and should not be glossed over or avoided. The awarding of certificates and pins within the patrol or at large in the course if groups are not too large can achieve the same end if handled sensitively and without embarrassment.

WRAP-UP (continued)

Expectations:

1. Carry out patrol debriefing in a formal manner.
2. Discuss with each student his performance on the course.
3. Complete a student report on each student. (P. 105)
4. Collect a course impression from each student and a thank you letter for all scholarship students. (P. 105)
5. Account for all equipment and turn it in clean.
6. Carry out a suitable closing experience for the patrol.

Part II. FIRST AID, ACCIDENTS & EMERGENCIES

INTRODUCTION

This is less a teaching guide than a plan of action for dealing with emergency situations: steps and techniques are listed in the order in which they would occur. Use the Lesson Plan to organize material into teaching units for transmission to students, as required by the Safety Policy. Beyond the basic elements the instructor can select what to cover in depth as time and interest allow, using this material as reference.

The format of this section is:

1. Introduction/Safety Policy/Lesson Plan
2. Accident/Emergency Procedure

Step	I	Search "Find 'em"
Step	II	Primary Action/Survey "Keep 'em Alive"
Step	III	Secondary Survey: Assessment/Evaluation "Find the problem"
Step	IV	Treatment/Stabilization "Treat the problem"
Step	V	Evacuation "Get 'em home"
Step	VI	Reporting "Get it ALL down on paper"

The six step procedure is a breakdown of the typical rescue operation. Steps II, III, and IV are a conglomerate of EMT and Red Cross techniques, with certain additions, notably the section on hypothermia. Steps I, V, and VI are a rearrangement of the classic search and rescue texts.

SAFETY POLICY

1. Each standard OB course will be formed and trained as a search and rescue unit available for public service.

2. The Program Director or School Director must approve any request from outside agencies to divert COBS courses for search and rescue.

3. The first aid instruction will take place during the first three days of a 21-23 day course and during the first day of the shorter courses.

Accident/Emergency Procedure (continued)
Safety Policy (continued)

4. Instruction must include treatment of the following:

   a. Bleeding
   b. Respiratory and circulatory failures
   c. Shock
   d. Hypothermia

5. The instructor will discuss the contents and use of the instructor and student first aid kits.

6. Helicopters are to be avoided if other means of emergency evacuation can be effectively utilized.

7. If COBS students or staff miss a scheduled contact, search efforts will commence within twelve hours.

8. Reports will be filed for each accident, illness and near-miss.

LESSON PLAN

The frame of mind we seek in ourselves and try to instill in students is one of readiness based on concrete knowledge, organization of that knowledge, and the ability to apply the organized knowledge under the stress of an emergency situation. Response to an injury or accident must be immediate, effective and as complete as possible. We "train in" this frame of mind by progressive instruction of the basics, frequent checking of understanding and continuous practice. Once the required material on bleeding, respiratory failure, shock and hypothermia is taught, in the training phase, it must be fitted into a pattern which can be applied to any situation, and that pattern must be practiced until it is automatic. This continues throughout the course.

The first aid instruction should begin with a background session explaining the importance of safety, the place of prevention in forestalling emergencies. Safety starts here: we must act to make first aid unnecessary.

A second attitude to be introduced is that of readiness to deal with what does occur. This involves recognition that emergencies are possible, but that by learning some specific things and practicing them we can help each other. Keeping calm and preventing further injury are part of this attitude of readiness.

Then comes an item-by-item explanation of items in the patrol first aid kit.

Next explain the major life-threatening emergencies--cessation of heart and respiration, and severe bleeding. This material is found under Step II. Demonstrate and practice, CPR, mouth-to-mouth, and direct pressure.

Then explain secondary measures: shock and its treatment, full-body exam, questioning victim, taking one's time.

Discuss treatment of minor injuries, as time allows.

Re-emphasize this sequence and have students outline it in their journals.

Search techniques and rescue procedures, including litter carries, can be taught as opportunities present themselves, but must be finished and practiced before final expeditions.

One of the difficulties in teaching first aid is to reach a level of realism that the student can relate to. The impatience that many people have in dealing with simulated accidents and the revulsion they have in dealing with the "real thing" have to be "trained out". The response to an injury, real or pretended, must be immediate, effective and as complete as possible.

One method to consider is to discuss and execute with students actual accidents as they have occurred in mountain situations in the past. Have the students treat these accidents and then have them critique each other and the original treatment. A discussion of the ideal treatment should follow. Try to choose situations that could occur within your particular group. Have the students work in small groups.

Utilize existing injuries; i.e., sprains, cuts, burns, or turn a casual stumble on the trail into an exercise.

ACCIDENT/EMERGENCY PROCEDURE

Step I Search ("Find 'em")

A. Select search leader; senior or most experienced person.

B. Gather all available information:

1. Name
2. Age
3. Description

Accident/Emergency Procedure (continued)
Step I (continued)
B. (continued)

4. Experience
5. Clothing
6. Equipment
7. Intended plans
8. Where last seen

C. Formulate search plan on the basis of resources and information available. Notify COBS office and appropriate authorities.

D. Search techniques:

1. Hasty search: a rapid search covering the most likely places a person who has lost his way might go (trails, shelters, stream valleys, power lines, etc.). This type of search often can be done over a substantial area with relatively few personnel. Watch for tracks and other signs.

2. General search: a more detailed search in which the area is covered by a line of searchers who remain within calling distance of one another. Searchers are briefed on the boundaries of the area and the search pattern to be used.

3. Fine search: similar to the general search except that searchers are close enough together to insure that the missing person could not be missed even if he is not conscious.

Step II Primary Action/Survey ("Keep 'em alive.")

The immediately life threatening emergencies are cessation of breathing, heart stoppage, and severe bleeding. These must be checked for on first reaching an accident victim, and must be monitored constantly in any unconscious person; the factors involved can be remembered as the "Double ABCs":

A: airway, aspiration
B: breathing, bleeding
C: circulation, cervical immobilization
S: shock

(This is the basic material we must teach students.)

Accident/Emergency Procedure (continued)
Step II Primary Action/Survey (continued)

In the order in which they should be done, they run as follows:

A. Breathing (breathing, airway, aspiration): The cessation of breathing causes brain damage from lack of oxygen in 4-6 minutes, so haste is essential. Explain the sequence of mouth-to-mouth resuscitation, demonstrate, and have students practice:

1. Establish unresponsiveness. Shake victim and shout, "Are you okay?" Check to see if victim is breathing: are there breath sounds? Can you feel movement of air from mouth or nose? Is there chest movement?

2. If these are absent, place victim on her back and clear mouth of any foreign matter, turning victim's head to side and sweeping fingers through mouth. Rescuer kneels at victim's side, facing her head.

3. Tilt victim's head back, supporting victim's neck and pressing down on forehead. This assures an open airway from mouth to lungs, and often is enough to start victim breathing again. Listen and feel with ear placed to victim's mouth for breath sounds, watching victim's chest for breathing movements.

4. If good breath sounds are present, no more resuscitation is needed, if not, then...Pinch victim's nostrils closed, take a deep breath, place your widely opened mouth over victim's mouth, and blow so that the chest rises.

5. Rescuer removes his mouth and listens for expired air. If air exchange is not effected, re-check head and jaw position and re-check for foreign material in mouth. It may be necessary to turn victim on her side and strike her sharply between the shoulder blades to dislodge foreign matter from the trachea. Then remove foreign matter with fingers.

6. Continue breathing vigorously into victim's mouth at the rate of 12 breaths per minute, 1 per 5 seconds. If victim does not begin breathing after 3-5 ventilations, go on to next step in the sequence, checking for pulse.

7. The victim's stomach may become distended if air is forced into the esophagus instead of the lungs. If this happens, moderate pressure with the palm should

Accident/Emergency Procedure (continued)
Step II Primary Action/Survey (continued)
A. (continued)
7. (continued)

be used on the upper abdomen to force the air back out. When applying pressure to the stomach, the first aider should turn the victim's head to the side. This is to prevent aspiration of any nongaseous stomach contents which may come up with the air.

Aspiration is a new term to most first aiders. It is inhalation of nongaseous substances, generally liquid, into the lungs. The presence of vomitus, blood or other fluids in the lungs will impede and destroy the lungs' ability to oxygenate the blood. "Suctioning" (using a portable suction device to suck the fluids out of the airway) is very effective but usually unavailable to us. In general, placing the victim on her side so that substances can drain out of her mouth (the coma position), used in conjunction with using two fingers to sweep material out of the mouth and throat, is also effective, and involves no special equipment.

In resuscitation if the patient's neck should not be turned because of fear of cervical injury, a full body roll should be used.

B. Cardiac Arrest (circulation): Determine whether heart action is present by feeling for the carotid pulse in the victim's neck--this is the most evident pulse and the easiest to find in an emergency. If there is a pulse, continue artificial respiration until victim begins to breathe. If there is none, begin CPR (cardio-pulmonary resuscitation), so called because it involves manual stimulation of the heart to pump blood while supplying oxygen to the lungs by mouth-to-mouth breathing.

Explain and demonstrate the techniques, then have students simulate. Emphasize that the timing and rhythm are vital and must be correct.

1. Establish unresponsiveness - Shake and shout, "Are you OK?".

2. Place victim on his back on a firm surface. A single rescuer kneels beside the victim's chest so that he can quickly alternate between breathing and compressing. Two rescuers would kneel on opposite sides of

Accident/Emergency Procedure (continued)
Step II Primary Action/Survey (continued)
B. (continued)
2. (continued)

the victim with the ventilator beside the victim's head, the compressor beside his chest.

3. Tilt head, check for breathing and check carotid artery for pulse for ten seconds.

4. If rescuer has witnessed the person drop, he can deliver a "thump" to the victim upon establishing pulselessness. This is done by striking the midpoint of the victim's sternum with the fleshy part of the fist with a sharp blow from 8-10 inches above the chest. If the victim still has adequate oxygen in his bloodstream, a thump may restore a functional cardiac rhythm and an effective cardiac output. If the rescuer has not witnessed the arrest, he must not use a thump, but instead go directly to step 5 upon establishing pulselessness.

5. Rescuer delivers four quick breaths to the victim.

6. If the rescuer has used a thump, he again checks the pulse at the carotid to see if it has been restored. If not, he proceeds from step 5 to step 7 directly.

7. Having established that there is no pulse and having delivered the four quick breaths, the rescuer initiates cardiac compressions:

a. Rescuer places the heel of one hand on the lower half of the victim's sternum but not on the protruding lower tip (the xiphoid process). The fingers should be over, but not touching the victim's ribs, and the heel of the other hand is placed on the back of the first hand.

b. Rescuer leans forward, keeping his elbows straight, until his shoulders are directly above the victim's sternum, exerting pressure from body weight to depress the sternum 1 to 2 inches. Maintain a continuous and rhythmic cycle of ½ second compression and ½ second release.

With two rescuers, one performs cardiac compression at 60 pumps per minute, and the other ventilates the lungs very quickly every five compressions, taking care not to

disturb the rhythm of the heart compressions. Check for return of pulse every minute.

If only one rescuer is present, he must proceed as follows:

a. Rapidly ventilate the lungs four times.
b. Perform heart compression fifteen times.
c. Then continue a repeating sequence of two ventilations and fifteen compressions.

C. Bleeding (severe): Almost all bleeding can be stopped by applying pressure directly to the wound by hand for a few minutes. The bare hand may be used but a cloth or dressing - the cleaner the better - is preferred. If bleeding persists, pressure at the appropriate "pressure point" should be used in addition to direct pressure. These two techniques, used together, will stop any bleeding if properly applied. The tourniquet would best be ignored except that many students will have heard of it and questions are to be expected. The instructor should explain the tourniquet should be regarded as an extreme measure to save a life by sacrificing a limb and its use is almost never justified. Once this is made clear, the instructor may at his discretion explain and demonstrate the proper technique:

a. The tourniquet should be a broad piece of material wrapped fully around the limb immediately above the amputation and secured with an overhand knot.

b. A small stick is tied on top of that knot and twisted only until bleeding stops, then tied or taped in place.

c. The victim must be plainly labeled (usually by writing the letter "T" on his forehead) and the time of application of the tourniquet plainly marked.

d. The tourniquet must not be loosened until the victim is in a physician's care.

D. Cervical Immobilization

This is the care given to a victim's neck when there has been actual or possible damage to the cervical vertebrae. An aggravation of a cervical neck injury could cause respiratory arrest.

The rescuer, when dealing with an unconscious patient, must assume that the victim has a broken neck unless the rescuer can adequately rule out this possibility.

The victim should be splinted as he lies. Do not attempt to straighten neck or back merely for convenience of splinting and evacuation. Any adjustments necessary for establishing an airway must be done without bending or twisting the neck. If the neck must be straightened to establish an airway, gentle traction should be used. The neck should be immobilized on the stretcher with pads beneath and on both sides.

E. Shock

This is a condition of cardiovascular failure due to loss of blood or to problems in the mechanism for blood vessel size control. Shock must be anticipated and treated in every serious injury regardless of whether symptoms are observed. Important symptoms are:

1. Weakness
2. Pale, clammy skin
3. Pupils dilated; eyes vacant, glassy
4. Nausea
5. Breathing shallow and irregular
6. Pulse rapid and weak

Treatment for shock:

1. Keep patient lying on her back.
2. Elevate legs (except in cases of head or chest injury).
3. Maintain body heat.

A person should be able to examine an accident victim for breathing, pulse and bleed-out in less than one minute. Finding no breath, the rescuer institutes mouth-to-mouth resuscitation. Finding no pulse, he begins cardiopulmonary resuscitation. An unconscious person's breathing, pulse and airway must be scrutinized constantly. His neck is assumed to be broken unless highly unlikely. Preventive treatment for shock is instituted.

Step III Secondary Survey: Assessment/Evaluation
("Find the problem.")

In the third step of the emergency protocol, actually the second step of the first aid, the rescuer does three things:

A. Observes and records the vital signs of the patient. These are, for field and lay personnel, pulse, respiration, skin tone, temperature, eye condition, level of consciousness and extremity neural response. These should be checked and recorded every 10 to 15 minutes, or as often as possible. A "vital signs progress chart" should be provided in the first aid kits for this purpose.

B. Carefully examines the patient's entire body. A complete examination should be done on any accident victim. Many people have died because gory, superficial injuries were treated while hidden, critical injuries were overlooked. To facilitate this exam, a "full body examination checklist" should be available to insure that no areas are missed, and to provide space to record any findings. This should be demonstrated and practiced.

C. Diagnoses the victim's condition.

This is the really hard part of wilderness first aid. Background reading, common problems listed in Step IV, and various emergency care courses help, but only a lot of experience can give diagnostic competence.

The mechanics of an accident, symptoms felt by the victim, signs observable to the rescuer, the progress of the vital signs are all pieces in the puzzle of the victim's condition. Basically, one learns what to suspect through experience. Generally, the problems of trauma will be all too obvious, save with blunt abdominal injury. Medical complaints are tough to evaluate. Wilderson's Medicine for Mountaineering is very helpful here.

A useful concept in evaluation is "Progression". This is a key word in all diagnosis of patient condition and the effects of trauma.

Progression is change - change in a patient's condition. As signs and symptoms of an accident victim, they either improve or deteriorate. As these signs and symptoms

deteriorate, so does the patient's condition deteriorate. His condition is not "stabilized". His is a negative progression. He is getting worse.

If the signs and symptoms of a patient's condition do not change, the patient is said to "stabilize". If they improve - change in a positive manner, his is a positive progression. He is getting better.

The instructor or first aider can observe progressions in:

1. Levels of consciousness
The levels or states of consciousness of the human mind blend from one to another. There are no clear divisions between levels.

A practical division of the levels of consciousness is as follows....

Level 1. conscious: socially appropriate response
Level 2. stuporous: socially inappropriate response
Level 3. somnolent: appropriate response to pain
Level 4. unconscious: inappropriate response to pain
Level 5. comatose: no response

The conscious level is that of normal wakefulness. Answers to questions given are sensible and coherent. If the patient's answers to simple questions are inappropriate, confused or mumbled and slurred, then he is "stuporous", in level 2. If the victim's response to questions is non-existent, his response to pain can be tested. One method is to make a fist and rub one's knuckles up and down the victim's sternum (breastbone), pressing firmly. If the victim grabs the offending arm and attempts to remove it, or swings his arm up to knock it aside, that shows "somnolence", signified by an appropriate response to pain in the absence of social response.

Merely a moan or shrugged shoulder in response to "knuckling" or an ineffectual moving of the victim's arm is an inappropriate response, showing level 4, "unconsciousness". Advanced unconsciousness is the comatose state, level 5, signified by total absence of response to either speech or pain.

Accident/Emergency Procedure (continued)
Step III (continued)
C. (continued)
1. (continued)

For the purposes of Outward Bound, anything other than level 1, full consciousness, is cause for evacuation, unless it changes quickly to level 1. But it is important to note the levels of consciousness and their duration, and to record this information to be sent with the patient.

2. Pulse
At the radial, carotid or femoral, the rate and quality of the pulse can be taken.

3. Respirations
By applying a hand to the victim's diaphragm and an ear to just above his mouth, the rescuer can note both the quality and rate of the breathing, also detecting irregular breath sounds.

4. Temperature
This can be taken orally or rectally. Without a thermometer, the rescuer must rely on touch for her findings.

5. Eye Response
Upon sudden exposure to light, the eyes should respond quickly and equally by constriction of the pupils. Any other response, or lack of it, is a grave sign and should be recorded.

6. Skin Tone
The skin tones of shock, heat stroke, anaphylaxis, hypothermia, etc., are distinctive, and should be looked for.

7. Nerve Responses
Variations in paralysis, numbness, twitching and tingling should be noted and recorded. This is especially useful in assessing neural damage.

8. Confusion, dizziness, irritability, memory loss
These are conditions which to a limited degree are part of normal consciousness. Marked presence of these qualities describes "stupor", the first level of unconsciousness. A gradual intensification of these is a bad sign, a negative progression.

Accident/Emergency Procedure (continued)
Step III (continued)

Given these parameters, an instructor can plot the course of a victim's cond'tion while awaiting assistance. Or, encountering a student who was briefly unconscious after an accident, he can determine the condition of the student's various signs, wait 15 minutes, and check again. A negative change encourages rapid gentle evaluation. Stability or a positive change, verified by another check 15 minutes later, would suggest walking the student out, slowly, without a pack. Repeated checks of the student's condition would need to be done, and a halt called for any negative change.

Step IV Treatment/Stabilization ("Treat the problem.")

This step involves treating problems uncovered by the secondary survey. Techniques of Red Cross first aid come into their own here. Listed below are the problems most likely to be encountered on an Outward Bound course.

1. Flesh Wounds
The signs and symptoms of open flesh wounds are pain and bleeding, occasionally accompanied by shock. Treatment is:

   a. Stop bleeding
   b. Clean if a minor wound
   c. Apply sterile dressing
   d. Apply bandage
   e. Monitor for shock

2. Broken Bones
Signs and symptoms of fractures are pain, tenderness, deformity, sensation of grating bone ends.

   Treatment involves splinting to immobilize bone ends so as to prevent further injury; for open fractures a sterile dressing is placed over the wound before splinting. Treat for shock.

3. Chest Injuries
Falls from heights often break or crack ribs. Taping around the body often provides support and relieves pain. Occasionally the broken ends of the ribs will puncture a lung. If you find an accident victim with an open chest wound through which air is being sucked in and out with each breath, seal the wound with an airtight dressing.

Accident/Emergency Procedure (continued)
Step IV (continued)

4. Abdominal Injuries
Falls from heights will often rupture internal organs without breaking the skin surface. If this occurs, there will be pain, tensing of the gut muscle walls, an absence of digestive sounds and shock, due to internal bleeding. Such a victim must be kept absolutely still, since any rough movement can dislodge clots, aggravating the symptoms. Any victim of a fall who suffers from shock after an accident should be evacuated.

5. Head Injuries
Explain the following to students and point out that the manual Mountaineering Medicine in the patrol first aid kit has a section on head injuries which they should consult in any emergency rather than try to rely on memory.

a. Bleeding from scalp wounds is often extensive because of the large number of blood vessels, but it can usually be controlled readily by direct pressure.

b. Foreign objects imbedded in the skull should be bandaged in place.

c. Any injury to the brain nearly always results in unconsciousness; the duration and depth of the coma correlate roughly with the severity of brain damage. Any head injury that results in unconsciousness is cause for evacuation to a doctor.

d. Unconsciousness of a few minutes duration or less may indicate only mild concussion. The victim may be allowed to walk out under his own power if he is alert, but he must be carefully watched for dizziness, weakness, confusion, and loss of balance or coordination. Check for progression in vitals every 15 minutes until stability is assured.

e. Prolonged or repeated loss of consciousness indicates more serious brain damage. Carryout should be effected as soon as possible after any head injury for which any of the following signs are present:

Accident/Emergency Procedure (continued)
Step IV (continued)
5. (continued)
e. (continued)

(1) Bleeding from ears, nose or mouth (other than that caused by local injury)
(2) Clear watery fluid draining from ears or nose
(3) Unequal pupils
(4) Prolonged unconsciousness or stupor
(5) Loss of muscle power or sensation in any area
(6) Loss of ability to respond correctly to simple questions. (Where are you?)
(7) Inability to stand with eyes closed
(8) Inability to walk under control
(9) A second lapse into coma after regaining consciousness

f. Litter evacuation for a head injury generally will not require splinting of any sort or other special measures except additional padding to protect the head. When evacuating an unconscious person the breathing must be constantly checked as the tongue will tend to block the airway.

g. Unconscious head injury victims are assumed to have a broken neck and treated accordingly.

h. Because brain injuries frequently cause a depression of respiratory function, ideally oxygen should be administered to make sure the brain does not deteriorate further from oxygen depletion.

6. Spinal Injuries
Explanation: (remind students to refer to the copy of Mountaineering Medicine in the first aid kit) Fractures of the back and neck are among the most demanding problems to be dealt with in the field because of the danger of causing death or permanent paralysis by damaging the spinal cord during treatment. This danger generally is greatest for neck fractures and diminishes the farther down the spinal column the fracture occurs. Any bending or twisting of the fractured spine may cause irreversible damage to the spinal cord; therefore, rigidity must be maintained during diagnosis, splinting, and evacuation. When spinal injury is suspected, do not allow the neck to bend forward, but perform the following checks:

Accident/Emergency Procedure (continued)
Step IV (continued)
6. (continued)

a. Determine if neck or back hurts. Severe pain in the absence of local bruises indicates possible fracture.

b. Determine if neck muscles are tense and rigid. The victim of serious neck injury will not want to move his neck.

c. If other injuries permit, test for loss of muscular control by asking victim to move his arms and legs.

d. Test for loss of sensation by stroking both arms and both legs and asking if feeling is abnormal.

A positive indication on any of these checks warrants treatment for fractured neck or back, the essence of which is extremely careful splinting and evacuation. The victim should be splinted as he lies. Do not attempt to straighten neck or back merely for convenience of splinting and evacuation. Any adjustments necessary for splinting must be done without bending or twisting the spinal column. If the neck must be straightened to open airway, gentle traction should be used, and maintained. The neck should be immobilized on the stretcher with pads beneath and on both sides. The stretcher should also have pads to support the small of the back and to pad the head, shoulders, buttocks, and heels. Use a Stokes Litter or rigid board for evacuation.

Demonstration and practice:

a. The 4-man pick-up. Three rescuers kneel shoulder-to-shoulder beside victim; the fourth kneels at the head and keeps it aligned with the spine. Three lifters carefully slide their hands under victim's body. On the command, "lift", from the man at the head, the victim is lifted to rescuers' knees. On the command, "stand", all rescuers simultaneously stand, lifting victim to their waists. The procedure is reversed to lower the victim into litter. (This exercise serves chiefly to illustrate the difficulty of keeping spine aligned in a lift with only four rescuers.)

b. Repeat using two additional lifters on the opposite side of the victim and with other combinations of available lifters, striving to maintain spinal alignment.

Accident/Emergency Procedure (continued)
Step IV (continued)
6. (continued)

c. The horse collar neck support. A blanket or sleeping bag rolled into a 6-foot long roll is gently slipped under the victim's neck until the neck rests on the middle of the roll. The ends of the roll are crossed beneath victim's chin and secured with cord or straps around the chest.

d. Secure victim in Stokes litter and carry a few minutes.

7. Hypothermia

Explanation: Whenever body heat is lost faster than it can be produced, body temperature begins to drop. Conditions that tend to promote heat loss are wind, low air temperatures, inadequate insulation (notably wet clothing), heavy breathing, and conductive losses by contact with cold objects (such as sitting on the ground). Factors tending to reduce bodily heat production are fatigue, inadequate caloric intake, and insufficient muscular exertion. Small, slender people are most likely to have a low ratio of heat production to heat loss because of their low ratio of body volume (heat production) to surface area (heat dissipating). The body responds to heat loss first by involuntary constriction of blood vessels to the skin, particularly in the extremities. As cooling progresses the following symptoms appear:

a. Shivering, becoming intense and uncontrollable.

b. Apathy, deterioration of mental processes.

c. Shivering changes to muscular rigidity; loss of coordination; continued loss of comprehension, but victim may still appear rational.

d. Victim becomes irrational and disoriented; muscular rigidity continues; pulse and respiration depressed.

e. Victim loses consciousness; reflexes cease to function; heartbeat becomes erratic; eyes become glassy; extremities freeze.

f. Failure of vital control centers in the brain; probable pulmonary edema and hemorrhage; death.

Accident/Emergency Procedure (continued)
Step IV (continued)
7. (continued)

Prevention of hypothermia centers around controlling heat losses while maintaining heat production. In essence:

a. Carry adequate raingear and insulation, particularly wool.

b. Eat adequately and frequently; increase in heat production is prompt but brief for carbohydrates, much prolonged and higher for proteins, slow for fats.

c. Avoid pushing to exhaustion.

d. Increase these precautions under cold, rainy, and windy conditions.

Treatment consists of providing additional heat to victim; providing extra insulation will not suffice to halt progressive heat loss. The following steps will be useful in the field:

a. Prevent further heat loss by moving victim to best shelter immediately available; remove wet clothing.

b. Place victim in pre-warmed sleeping bag. If room permits and additional people are available, put others in the bag to provide warmth. All should be stripped to dry underwear to promote heat transfer. Hot water bottles, heated rocks, or other warm objects may also be used to provide heat; though care must be taken not to burn victim.

c. If victim is conscious, provide warm fluids and foods (particularly carbohydrates such as sugar and candy).

d. If victim's oral temperature is below 90 degrees F. his rectal temperature should be taken. (A rectal temperature of less than 90 degrees F. indicates a good chance of ventricular fibrillation.)

Ventricular fibrillation can also occur after rewarming. This occurs because prolonged hypothermia reduces the oxygen supply to the tissues. Lacking oxygen, the tissues switch to anaerobic (without oxygen) metabolism,

producing acids. Upon rewarming, these acids are released into the blood. When the acids reach the heart, they can stop it. This crisis can occur within two to three hours after rapid (immersion) rewarming, or 12 to 24 hours if the victim has been warmed at "room temperature". So, encountering a victim of extreme, prolonged hypothermia (out overnight, for example, with no gear in below freezing temperatures) rapid rewarming is not enough. Rapid evacuation is also essential.

The instructor can best deal with hypothermia by preventing it, or failing that, catching it early.

8. Heat Problems

Explanation: Although even mid-summer temperatures in the Colorado mountains are not generally high, the physical stress levels occasionally reached on Outward Bound courses may cause excessive production of heat. Adequate fluid and salt intake generally will keep serious heat problems from developing. There are three major types:

a. Muscle cramps. Generally induced by a combination of salt depletion and strenuous muscular exertion. Stretching the cramped muscle often provides quick relief, and oral administration of salt water (one teaspoon salt to a quart of water) will relieve salt deficiency.

b. Heat exhaustion. Caused by prolonged physical exertion in a hot environment. Blood vessels in the skin become so dilated that blood supply to the brain and other vital organs is impoverished. Symptoms are weakness, dizziness, headache, nausea, faintness, pupils dilated, skin moist and clammy, temperature normal or even low. Treatment consists of rest in a cool place and administration of salt water. Recovery should be prompt but further heat stress should be avoided.

c. Heat stroke. Caused by failure of the sweating mechanism, usually due to prolonged sweating, which causes a depletion of the sweat glands. Onset is often very abrupt, victim quickly becomes confused, delirious, or unconscious. The skin is hot and dry, temperature very high, often above 105. This is a

true medical emergency and the victim may die if he is not cooled immediately. Immersion in cold water is ideal, but wet clothing, snow, and vigorous fanning would help in the absence of a water bath. Cooling can be stopped when the victim's temperature diminishes, but evacuation should proceed without delay and the victim should be watched for relapse into high fever.

9. Burns

Explanation: The seriousness of a burn depends on the depth of burning (first, second, or third degree) and also on the amount of area burned.

a. First degree burns involving only pain and redness of the skin do not kill any tissue or break the skin. Immersion in cold water should be immediate and of long duration (½-1 hour). This greatly inhibits tissue degeneration and swelling. No creams should be used. No lotions should be used. No ointments should be used.

b. Second degree burns cause death to outer skin layers, resulting in blisters. Pain is usually severe if more than a very few square inches of skin are involved, and if as much as 20 per cent of the body (as, for example, the chest and abdomen) are affected, the victim should be promptly evacuated to medical facilities for administration of intravenous fluids. Cold water baths or cold, wet compresses will provide relief. Pain usually subsides when air is excluded, which should be done by thick, sterile dressings followed by bandaging. Ointments should not be used.

c. Third degree burns affect the full thickness of skin and may extend deeply into the underlying tissues. The skin usually appears dry and pale or white, but it may be brown or charred. Third degree burns, usually very small, do not heal unless covered by skin grafts. Any third degree burn covering more than 10 per cent of the body surface is potentially critical. Any third degree burn victim should be evacuated. No ointments of any type should be applied. An airtight dressing should be used. No skin or fragments should be removed.

10. High Altitude Pulmonary Edema

Explanation: An accumulation of fluid in the lungs may be experienced by people ascending rapidly to unaccustomed altitude. The disease does not seem to be predictable, as individual susceptibility varies widely, but it rarely occurs below 11,000 feet. The cause of pulmonary edema is not adequately understood, but if not arrested, the fluid may so obstruct the exchange of oxygen and carbon dioxide in the lungs that death by suffocation follows rapidly.

The first symptoms usually appear 6 to 36 hours after arriving at altitude and consist of cough, shortness of breath, pressure under the sternum, and apprehension. The appearance of a dry, irritating, persistent cough in the absence of a cold in a new arrival to altitude is highly suspicious of developing pulmonary edema. Respirations become rapid and noisy; the skin, lips, nails, become bluish, and coughing produces a frothy sputum which may be flecked with blood. Bubbling sounds may be audible in the chest.

Treatment consists of administration of oxygen and evacuation to lower elevation; the patient will be able to breathe more easily if the upper body is kept upright during the evacuation. Although recovery may be remarkably rapid a rest of at least a couple of days must be provided to prevent recurrence.

11. Mountain Sickness

Headache, lassitude, loss of appetite, nausea, insomnia, and shortness of breath frequently appear when people climb rapidly to unaccustomed altitude. The problem basically is due to oxygen deficiency and is best prevented by ascending gradually over a period of days so that the body may adjust to a new oxygen environment. Descending to make camp several hundred feet lower than the day's high point is particularly prudent as sleep depresses the respiratory function.

12. Diarrhea

Most often caused by a change in diet, but other causes include viral and bacterial infections. The symptoms are the frequent passage of loose, often watery stools, frequently accompanied by stomach cramps. It is not generally possible to determine by the abruptness, severity, or duration of the symptoms which of the many

possible causative agents is operating. Prevention consists chiefly of such measures as boiling or otherwise treating questionable drinking water, thoroughly washing all cooking and eating utensils, and rinsing the soap from all utensils with equal diligence. Treatment consists of patience and of maintaining adequate fluid intake, to counteract dehydration. Often the disorder lasts only a few hours. Persistent diarrhea which causes no undue discomfort can safely be tolerated; if accompanied by stomach cramps or nausea, medical attention may be warranted.

13. Blisters

Blisters are usually caused by abrasion of the skin, most commonly on the heels, toes, or balls of the feet. Poorly fitting or new boots, wadded socks, and hard hiking all tend to promote blisters on the feet. Prevention centers around frequent checking of feet and protecting any hot spots with band-aids, tape, or moleskin before a blister forms. Foot inspection should be done every couple hours for the first few days of hard hiking; a buddy system is practical for this purpose. Blisters should not be opened unless it appears further walking would cause them to break anyway. If this is the case, the area should be washed and a sterile needle is slid under the skin just outside the blister and passed into the blister. Any fluid can be gently pressed out and a sterile dressing and bandages applied. A broken blister should be treated like any open wound. As with any foot wound, an open blister is quite infection-prone and should be examined at least every morning and night, and aired as frequently as possible.

14. Tendonitis

This disorder is characterized by the gradual onset of pain and stiffness which is usually related to the unaccustomed use of a muscle group for an extended time. Frequently the pain is first noticed the morning following such activities. Moist heat and aspirin may provide relief. The pain is not usually disabling but may persist for a long time. Tendonitis symptoms in the Achilles tendon can be relieved by the insertion of an ensolite heel pad in the boot.

15. Sunburn

Because atmospheric screening of ultraviolet radiation decreases at higher altitude, the danger of sunburn

increases. Highly reflective surfaces such as snow or light-colored rock often promote burning on areas usually in shadow, such as beneath the nose and chin. Opaque clothing provides sure protection; various sun creams are less effective, but specialized screening creams such as zinc oxide, if a good coating is maintained, generally will suffice. Mild sunburn can be treated with any soothing cream and should be protected from further radiation until pain subsides. Severe sunburn may require treatment as for a thermal burn.

16. Snow Blindness

Exposure of the eye surface to ultraviolet radiation can cause painful burns, although as with other types of sunburn, no discomfort is usually felt until a few hours after the damage takes place. The eyes may become red and watery, with swollen lids and disabling sensitivity to movement or light. Snow blindness can be prevented by using goggles or sunglasses curved sufficiently to block reflected light coming in at the sides. In an emergency adequate protection can be obtained from covering the eyes with an opaque cardboard shield with a thin horizontal slit for vision. Snow blindness heals spontaneously in a few days; cold compresses, ophthalmic ointment with cortisone, and shielding from light may provide relief.

17. Hyperventilation

Excessively rapid and heavy breathing may cause carbon dioxide to be exhaled so rapidly that the chemical balance of the blood is shifted. This problem most commonly occurs when anxiety or emotional stress causes a person to react by heavy breathing. Symptoms are shortness of breath, dizziness, numbness of the hands and mouth, faintness, apprehension, and a sense of suffocation. Breathing is often in gasps, and muscle spasms frequently occur. Treatment consists of reassurance to mitigate the underlying anxiety. The symptoms can be relieved by having the victim breathe in and out of a paper or plastic bag to restore carbon dioxide, or by simply calming the victim enough so that he can keep his mouth shut while breathing.

18. Frostbite

Ice crystals may form in tissues exposed to extreme cold. The crystals can physically damage the surrounding cells and also cause changes in the chemical balance by extracting fluids. The hands, feet, ears, and nose are particularly susceptible to frostbite as these suffer early loss of circulation when the body adjusts to cold and also tend to be more exposed to cold surroundings than other parts of the body. Prevention centers around maintaining adequate body heat by adequate intake of food, muscular exertion and insulation of head and trunk. Insulation of the extremities is also vital, as frostbite commonly results from direct contact with cold metal, liquid fuels, or cold wind.

Symptoms are white skin, with loss of sensation after earlier cold and pain. With deep freezing the tissues become hard. Blisters may appear after thawing. Treatment involves rapid rewarming, preferably in a water bath at about 110 degrees F. Thawed tissues are so susceptible to further injury, however, that thawing should not be attempted until the victim has reached a place where he can be kept warm and comfortable and from which he can be evacuated without having to use the thawed member. Walking on frozen feet an additional day, for example, would be less damaging than inadequate thawing or thawing under circumstances where further walking would be required.

19. Dislocations

Explanation: A dislocation is a tearing or stretching of ligaments around a joint, followed by displacement of the head of a bone from its socket. The shoulder is the most commonly dislocated joint, and the following remarks are limited to dislocated shoulders.

Symptoms: Shoulder appears angular, arm cannot be voluntarily moved, muscle spasm, considerable pain.

Treatment: Because of the danger of permanent injury, the safest course of action is to splint the arm and evacuate the victim to medical help. If this is not feasible, it may be possible to reduce the dislocation by the "dirty sock" method: Rescuer sits on the ground beside supine victim, grasps wrist of injured arm with both hands, places stockinged foot in victim's armpit, and gradually but very firmly pulls out on the arm and gently allows it

to return to the socket. For an individual with chronic dislocations this may be done quite readily, but the victim should always be evacuated for x-rays. An arm sling secured to the body with ace bandages should be used for evacuation.

An alternate treatment which is safer is to place the victim face down along the edge of a table or bench or similar surface that allows the extended arm to dangle freely. A 10-15 pound weight is taped or strapped to his wrist to provide traction of the injured shoulder. After an hour or so the shoulder muscles will usually tire to the point that the humerus slips back into position.

Demonstrate and practice the "dirty sock" technique for reducing shoulder dislocations.

20. Strains

A strain is a tear in muscle fibers or a rupture of the muscle lining, and usually results in pain and tenderness near the midportion of the muscle. Strains generally do not cause problems other than discomfort which may be substantial and prolonged. Cold applications immediately after injury may reduce swelling. A strain usually heals spontaneously and readily if care is taken to guard against recurrence.

21. Sprains

Explanation: A sprain is the tearing of ligaments around a joint resulting in pain, swelling and often discoloration. A severe sprain cannot be readily distinguished from a fracture, and should be treated as such. Ankle sprains are particularly common, and a supporting bandage applied over the boot may enable the victim to walk.

Demonstrate and have students practice a sprained ankle bandage.

22. Tick Fever

A variety of infectious conditions may be caused by microorganisms transmitted by tick bites. There is an incubation period of 5-7 days between the bite and the first symptoms--weakness, chills, followed by nausea, headache, fever, and pain which is often localized in eyes, back, or large joints. The best known variety of

Accident/Emergency Procedure (continued)
Step IV (continued)
22. (continued)

tick fever is Rocky Mountain Spotted Fever, in which measle-like spots occur 3-5 days after onset; the spots often are concentrated on the wrists, ankles and feet, spreading to the limbs, trunk and forehead.

Tick fever is markedly seasonal; in mid-June to early July some 25-50% of ticks may be infected. The incidence drops off drastically after mid-July. Tick fever usually responds well to antibiotics (tetracycline).

Step V Evacuation ("Get 'em home.")

This step speaks directly to the question, "How should I evacuate this injured person?". It deals specifically with choosing between helicopter and litter evacuations from remote areas, and with choosing between private vehicles or COBS vehicles, and ambulance.

A. Procedure for instructors/senior instructors in field

1. Make sure victim and all other personnel are not exposed to further danger.

2. Perform necessary first aid.

3. Decide what is needed to safely evacuate the injured person. Basically you have 3 options:

   a. Carry person to roadhead, transport to medical facility by COBS or private vehicle.

   b. Carry person to roadhead, transport to medical facility by ambulance.

   c. Carry person to a landing site, transport to medical facility by helicopter.

   The major, life threatening emergencies are:

   airway/breathing problems
   cardiac arrest
   shock-producing bleeding
   severe head injuries
   open neck, thorax, or abdominal injuries

Accidents/Emergency Procedure (continued)
Step V (continued)
Major emergencies (continued)

severe medical problems (appendicitis, pulmonary edema, etc.)
severe shock, unconsciousness
major burns
major multiple fractures
spinal injuries
cervical neck injuries
occluded extremity circulation
internal bleeding
fractured pelvis
fractured femur
open fracture
anaphylactic shock
worsening trend in signs and symptoms
severe crushing injury

Any of the above requires the fastest possible evacuation without aggravating the injury or adding to patient discomfort, and the use of a helicopter would certainly be justified. Whether or not to actually call a helicopter in any particular circumstance, however, involves some other considerations:

a. Is there an even faster and/or safer means of handling the evacuation? It may be that carryout to a nearby road is preferable.

b. Is there an adequate and accessible landing site? (see p. 53)

c. Is the weather and visibility suitable for helicopter operations? (see p. 53)

If the victim is to be carried to a road, an ambulance ordinarily would be preferred unless crucial time could be saved by utilizing a helicopter. Yet another consideration stems from the fact that the medical facilities closest to many course areas may be very limited. Course directors should know and inform

Accident/Emergency Procedure (continued)
Step V (continued)
Evacuation considerations (continued)

instructors of the nearest facilities able to handle moderate and severe emergencies. They should know which facilities are open 24 hours a day, and which have surgeons on call 24 hours a day. A helicopter evacuation to Denver could easily be preferable to an ambulance ride to an ill-equipped or closed western slope facility. Conversely, a short ride in a professionally staffed ambulance to an able facility would be preferable to a long flight to Denver.

This knowledge is also useful in choosing between an ambulance and a COBS basecamp vehicle. A well-equipped professional ambulance then would be preferable to a logistics coordinator and pick-up truck, given roughly equal driving time for both and an emergency injury contained in the list.

Conversely, a well-executed transportation of an accident victim to a medical facility by level-headed COBS staff members would be preferable to calling upon ill-equipped and amateurish local rescue groups.

In choosing from several available modes of evacuation, the instructor needs specific information concerning the availability and competence of local rescue, ambulance and medical groups as well as knowledge of the weather, terrain, etc.

It should be noted that many injuries encountered in the field are not included in the list given above. For example, a simple broken arm, leg, or rib would not alone merit a helicopter evacuation. Those three together, with some shock symptoms, would merit a helicopter, especially if one were quite remote. A scalp wound with no brain or skull damage signs could be carried or walked out. A person with a crushed hand could be walked or carried out. A person with a crushed arm could not.

4. Having decided the method of evacuation, proceed. If outside help is needed, fill out the "COBS Emergency Notice"...

Accident/Emergency Procedure (continued)
Step V (continued)

5. Contact one of the following in order of priority, and give him your name, location, and phone number and the information on your forms:

   a. Your Course Director
   b. The senior COBS staff member in residence at your base
   c. Your logistics coordinator
   d. The Outward Bound office in Denver
   e. The county sheriff

6. The runner making the contact waits for help to arrive before returning to aid in the evacuation.

B. Techniques:

1. Litter evacuation

   Demonstrate and have students practice:

   a. The use of the Stokes litter to transport a casualty

      (1) How to secure victim in litter
      (2) How to lift and carry
      (3) How to belay when descending steep terrain

   b. Construction of improvised litter, rope basket, coiled rope carry, or rigid litter made of poles and packs or parkas.

2. Helicopter alert

   Because of the costs and the hazardous nature of helicopter operations, helicopters are to be avoided if other effective means of handling a given emergency are available. Standard procedure is for administrative staff to approve all requests for helicopters, and a 24-hour answering service has been set up at the Denver office number, (303) 837-0880, to facilitate this. If for any reason this contact cannot be made, field staff may assume the responsibility for alerting a helicopter.

   In the event a helicopter evacuation is clearly warranted, the following options are available:

   a. ST. ANTHONY'S "Flight for Life" from Denver

      Alert by calling 1 800 332-3123

Accident/Emergency Procedure (continued)
Step V (continued)
2. (continued)
a. (continued)

Advantages
expert medical care (flight nurse) and equipment
units available 24 hours a day
take-off in 5 minutes or less after call
Alouette III 319 or Lama helicopters: both can land, take off, hover in excess of 15,000' flight times from St. Anthony's Hospital to:

Vernal (Green River)	1 hr. 45 min.
Marble (Snowmass)	1 hr. 10 min.
Silverton (San Juans)	2 hrs.
Vail (Gore, Holy Cross)	42 min.
Crestone (Sangre de Cristos)	1 hr. 10 min.
St. Elmo (Collegiates)	50 min.

b. MAST helicopter ambulance from Ft. Carson

Alert by calling (303) 579-3015

Advantages
expert emergency care (Army medics) and equipment
can carry 3 patients on a litter
no cost

Disadvantages
available helicopters (Bell) are suited only for evacuations from terrain that is open and free from obstructions with a diameter preferably greater than 200 feet, such as an open meadow; limited lift capability at altitude
Ft. Carson is over 100 miles from all course areas, requiring over an hour of travel time

c. Regular commercial helicopters

Those listed below may be preferred in some cases because of their accessibility to course areas. They can provide expedient evacuations but THEY ARE NOT SPECIALIZED FOR EMERGENCY CARE. They may be alerted by a sheriff, by the Colorado Emergency Operations Center, PHONE (303) 279-2511 Extension 241 (days); 366-5363 (nights), or by a call to the numbers listed on the following page.

Accident/Emergency Procedure (continued)
Step V (continued)
2. (continued)
c. (continued)

(1) Sky Choppers, Inc. (closest to southern San Juans)

Alert by calling (303) 247-0861 (Durango)

(2) Rocky Mountain Helicopters (closest to Uncompahgre and Utah areas - based in Provo, Utah)

When in Colorado, alert by calling 800 453-5235

When in Utah, alert by calling 800 662-5469

When preparing to alert a helicopter, consider the following:

As much information as possible concerning the nature of the injuries and landing site should be given the helicopter dispatcher. (See COBS Emergency Notice Form)

Given an evacuation from a remote spot, the pilots would prefer to pick up the Colorado Outward Bound School messenger and be directed by him to the exact site.

The pilots will not fly with less than a 500' ceiling (cloud to ground), less than ½ mile visibility, in winds above 50 knots, or in hail or thunderstorms. They will wait out a brief thunderstorm and then attempt transport.

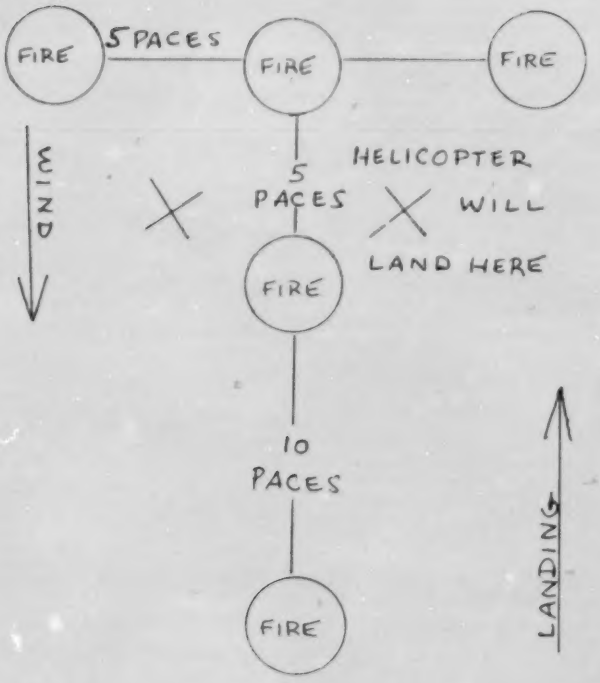
A landing area of at least a 60' diameter circle with no obstructions and a grade of no more than 12 degrees is the minimum landing requirement. The Alouette can hover over ridges or small summits, however.

The dispatcher should be warned if the flight nurses should have their equipment stowed in backpacks (in case they must walk or climb to an accident site) or if cold/foul weather gear is needed.

For night rescues, a military "T" formation of fires should be established: (see diagram next page)

Accident/Emergency Procedure (continued)
Step V (continued)
2. (continued)

"T" Formation of Fires



Step VI Reporting ("Get it all down on paper.")

Documentation of emergencies is necessary not only to provide a record for the organization of the event, but also to lend order and credibility to the conduct of the staff throughout the incident.

A. Make and retain copies of vital signs charts, body examination checklists, emergency notices and maps used during the emergency, also any other checklists used.

B. In the event of a very serious incident such as life-or-death situations, major limb fractures, or other critical emergency, the office must be notified as soon as possible.

C. The Program Director must be informed within 3 working days if a student visits a doctor or hospital. If he is admitted to the hospital the Course Director must notify the office and the victim's next of kin by telephone as soon as possible.

D. Any significant safety-related incident where injury was avoided should be documented by the instructor for the Course Director's "near-miss" report.

E. Superficial problems such as minor scratches, simple blisters, mild sunburn, etc., do not require reporting.

F. For all non-superficial injuries and illnesses, even if not caused by the program, the information below is to be provided by the instructor, reviewed by the Course Director, and submitted to the Program Director at the end of the course:

1. Victim's name, age, and sex
2. Nature and extent of injuries
3. Instructor or staff member in charge; other staff present; other students and witnesses
4. Course number, course day and activity (e.g. marathon, final expedition, etc.)
5. Date and time of accident
6. Location and elevation
7. Weather and terrain conditions
8. Statement of how accident occurred
9. Details of first aid and rescue
10. Physician's remarks and recommendations; physician's name and town or institution

Accident/Emergency Procedure (continued)
Step VI (continued)
F. (continued)

11. Disposition of the victim (Did he return to the course? Go home? To the hospital? When? Where? etc.)
12. Number of course days the victim missed
13. Analysis and recommendations
14. Signature of person filling out this report; date
15. Comments and dated signature of Course Director

Part III. SAFETY POLICY, PROCEDURE, AND LESSON PLANS

INTRODUCTION

Safety Policy

In Outward Bound it may be said that students are encouraged to take part in activities in which the risk of an accident may be greater than in their normal way of life. In consequence, there rests on those in charge of the training a special responsibility to ensure that adequate and continuous precautions are taken to prevent accidents. This responsibility, however, goes further than a merely negative approach based on restricting activities within safe limits. The principle is not to avoid activities involving risk, but to prepare participants both by technical training and physical fitness to deal with them competently. The aim is to teach that the more adventurous an undertaking, the more care and prudence are called for to succeed.

Hazards should not be sought for their own sake. It must be the aim to be so organized as to forestall the hazards as far as possible, but so trained that they can be mastered if they come. (From Outward Bound Trust)

The safe conduct of every activity on an Outward Bound course is one of the essential responsibilities of each program person. Based on long experience, there are certain policies that aid in insuring that the program is safe. These policies will be adhered to by all program staff while working on an Outward Bound course.

Although it is important for the school to set down a definite set of safety policies, the crux of maintaining a safe operation is the attitude of staff toward an overall responsibility for students. The instructor's judgement, technical skill, maturity, concern for student's welfare, and understanding of the overall objectives of Outward Bound are ingredients that supplement the application of a safety policy.

Specific responsibility in safety matters:

1. Course Director

    a. Reviews rules and procedures with all staff prior to the course.

Safety Policy (continued)
Specific responsibility (continued)

b. Queries each instructor after each expedition on the safety of the operation and of the terrain.

c. Organizes search and rescue operations.

d. Contacts Denver office as soon as possible regarding incidents requiring medical care other than superficial first aid.

e. Informs parents by telephone when a student is hospitalized and requests that attending physician also talk with parents.

f. Provides Denver office with a written report of each accident or significant safety incident at the end of the course.

2. Instructor

a. Insures that each student receives instruction, practice, and testing in first aid, emergency procedures, campcraft, and safe wilderness living.

b. Provides direct supervision of all patrol activities until students have demonstrated their ability to operate safely under prevailing conditions

c. Expedites first aid, rescue, and notification procedures in the event of an accident.

d. Reports all accidents, illnesses, and safety problems promptly in writing to the Course Director.

e. Initiates and supervises search and rescue operations as needed in the absence of Course Director.

Procedures

These are generally accepted practices of the COBS that instructors will use to insure that there is uniformity in the experience of students.

Lesson Plans

These are outlines of material to be presented to each student in specific areas. They are by no means comprehensive in nature but are usually the minimum acceptable. When a specific sequence is provided, it is desirable that the instructor follow the suggested sequence. In other areas, useful information is provided and the instructor is expected to develop his/her own plan.

ROCK CLIMBING, SNOW AND ICE CLIMBING AND RAPPELLING ACTIVITIES

Safety Policy

1. When climbing or bouldering, each individual will wear a hard hat approved for climbing.
2. Additional equipment, including first aid and evacuation gear, required by the nature of the climb will be present.
3. No student will lead a climb.
4. A safety belay will be used on all rappels.
5. Technically competent staff will supervise all climbing activities, including belay points and tying in.
6. Equipment will be checked at the beginning of each climbing day.
7. Climbing rules and procedures will be reviewed for participants before each climb.
8. All rock climbing areas will be reconnoitered and cleaned by staff before students may climb.
9. Climbing areas will not be overcrowded; there will be an adequate instructor/student ratio.
10. No one will climb with students without permission of the School Director.

11. When bouldering, spotters will be used if appropriate. If spotting provides insufficient safety, climbers will be secured by roping.

12. Climbing signals will be uniform throughout each course.

13. It is the responsibility of the instructor to see that knots are checked and carabiners locked on each occasion.

14. Instruction in climbing techniques will be progressive from basic to advanced.

Procedure

1. Tie-in procedures

   a. A swami with leg loops will be used for all rock climbing and rappelling.

      (1) Leg loops are tied near the middle of the swami using an overhand knot on a bight.
      (2) The swami is secured with a water knot.
      (3) To tie into the swami:

      - End of rope: use figure-of-eight knot threaded back through itself.

      - Middle of rope: tie a figure-of-eight knot on a bight and clip to swami with a locking carabiner or two carabiners with gates reversed.

   b. For peak climbs the swami is optional (Course Director's decision). When swami is not used, tie in as follows:

      (1) End of rope: a bowline tied around the waist and secured with two half hitches.

      (2) Middle of rope: a figure-of-eight knot tied on a large bight and tightened at climber's waist.

   c. For rappelling: brake is attached to swami; belay rope is tied to climber's waist with a bowline.

2. The belays and the tie-in should be tested whenever feasible before a climber commits himself to the climb.

3. Students should be thoroughly familiar with the hand coordination for belaying before encountering an actual belaying situation.

4. Students will be placed so they will not be directly above or below anyone climbing or rappelling.

5. The following signals will be used by students on all COBS courses:

   a. ON BELAY - called by the belayer to let the climber know he is anchored and has assumed responsibility for the climber's safety. (This also may be called up as a question by the climber if she is waiting at the bottom and nothing seems to be happening above.)

   b. CLIMBING - called up by the climber to indicate she is ready to begin a climb.

   c. CLIMB - the final "go ahead" called by the belayer to indicate he is ready for the climber to start up. Only after she hears this may the climber begin.

   d. UP ROPE - called by the climber to direct the belayer to tighten the belay.

   e. SLACK - called by the climber to direct the belayer to loosen the belay.

   f. OFF BELAY - called by the climber to indicate she is off the climb and no longer needs protection. Only then is the belayer released from his responsibility for the climber's safety. This same signal is usually used by the belayer to acknowledge he has heard and understood the "off belay" signal from the climber.

   g. ALL CLEAR - called up by the student when he has reached the end of his rappel, untied his belay rope, and moved out of the way. This notifies those above that the next person may start down.

   h. RAPPELLING - RAPPEL - when making a rappel this combination is used in place of "Climbing - Climb". Since the belayer and descender are together at the start of the rappel these signals are much less critical than the others. A loud "On Rappel" should also be called out to warn those below that rappel is imminent.

i. TESTING - called up by the climber in response to hearing "On Belay" from above. This indicates the climber wishes to test the belay from a safe position before committing herself to the climb.

j. TEST - the final "go ahead" called by the belayer to indicate he is ready for the test. Climber should then put her full weight on the rope but in such a manner that any failure in the belay would not be harmful.

k. TENSION - called up by the climber to direct the belayer to pull up forcibly on the rope to support her.

l. FALLING - called by the climber the instant she falls. Not only does this serve as a signal to the belayer (which may or may not reach him before he feels the jerk), but it provides the climber with a comforting sense of having something to do at this very trying moment.

m. ROCK - not a rope signal like the above but an immediate warning shouted to all below to protect themselves from a dislodged rock or other falling object.

Lesson Plans: Rock Climbing

1. Introduction

   a. History of mountaineering
   b. Mountaineering as a sport
   c. Why people climb - mountaineering as a philosophy
   d. Classification of climbs

2. Describe the climbing rope and its care.

   a. COBS uses 2 types of rope -

      Goldline: nylon triple strand construction. 7/16 inches in diameter; 150 feet weighs about 9 pounds; rated tensile strength over 5000 pounds; stretches over 50% before breaking; begins to stretch at slight loading; very strong, but cuts and melts easily.

      Perlon: nylon, "kernmantel" construction (an inner core of strands which carry the load, covered by a woven sheath which protects the core); 11 mm diameter, 150 feet weighs about 7 pounds; rated strength is around 4500 pounds (which is less than Goldline, but many climbers still choose Perlon

2. (continued)
a. (continued)

because of its easy handling); dynamic tests indicate that the two ropes behave similarly in a leader fall; Perlon also stretches at small loads; cuts and melts easily, although the sheath affords some protection.

b. Avoid stepping on the rope as this could cause damage by direct cutting or by grinding in particles of dirt that can gradually cut when rope is used.

c. Avoid stretching over sharp edges.

d. Keep rope dry or quickly sun dry it when wet. Otherwise, avoid direct sunlight as much as possible.

e. Do not leave rope tightly knotted or stretched longer than necessary.

f. Guard against excessive heat. The rope melts easily under excessive friction or if too close to fire or stove.

g. Inspect rope for damage prior to each use. Retire if damage is suspected.

h. Use the climbing rope only for climbing activities.

3. Teach students the following knots and their use:

a. Bowline tied off with two half-hitches. This knot is used to tie the end of the belay rope to the climber's waist when rappelling (or on a peak climb when swamis are not used).

b. Figure-of-eight knot on a bight. This is used to secure a belayer to an anchor and as a direct middleman's tie-in on peak climbs when swamis are not used. (Students should understand that this is identical to the figure-of-eight threaded back through itself that is used to tie the belay rope to a swami.)

c. Double fisherman's knot. This is to be used to tie two rope ends together.

d. The water knot or ring bend. This is used with the half-hitch to secure the ends of a swami belt. Also may be used

Lesson Plans: Rock Climbing (continued)

3. (continued)

d. (continued)

to tie two rope ends together. This knot is particularly good when webbing is used although it is not easy to untie after tension.

e. The Prusik knot. This is used to provide a moving safety on a fixed line or on a rappel.

4. Demonstrate and practice coiling.

a. Uncoiling the rope: by strand to avoid tangle

b. Coiling the rope: right-hand lay; wound in a clock-wise direction, the same way as the threads of a screw.

c. Methods of coiling:

(1) Mountain coil
(2) Backpack coil
(3) Leg and knee - fastest way but recommended only for emergencies as it leads to stepping on the rope and getting dirt in it.

5. Pitons and jam nuts.

Explain their use and construction. Require expert knowledge of their use to be safe.

6. Climbing boots.

a. Vibram sole: placing foot flat for friction or edging on small holds.

b. Shank: may vary from flexible to very stiff; a stiff boot is good for edging and ice climbing but may be less comfortable for hiking.

7. Hard hats.

a. Explain design

(1) Hard outer shell
(2) Shock absorbing inner liner

b. Need for chin strap to be fastened. To be worn <u>at all times</u> by instructors and students when rock climbing or in any

Lesson Plans: Rock Climbing (continued)
7. (continued)
b. (continued)

situation where a fall could result in a head injury or when there is danger of falling rock (peak climbs, bouldering, rock and ice climbs, some boulder fields and river crossings).

8. Explain the principles of belaying.

a. Belayer must be anchored and in a firm position.

b. Rope friction, not the belayer's strength, is what will stop a fall.

c. Belayer must maintain control with his braking hand at all times.

9. Demonstrate and practice the seated hip belay.

a. Belayer is braced in a sitting position with at least one leg locked straight. He is anchored snugly to a fixed point behind him with a figure-of-eight knot tied on a bight in the rope below his waist bowline.

b. Rope from climber comes up the best-braced leg, around the back as low as possible but above the anchor tie, and is grasped by the "braking" (or "holding" or "catching") hand.

c. The braking hand must remain on the rope at all times, ready to stop a fall by squeezing the rope and drawing it tightly into the crotch or across the abdomen.

10. Explain and practice the rope signals.

11. Demonstrate and practice the use of hands, feet, and balance in face climbing, cracks, chimneys, and liebacks.

Lesson Plan: Rappelling

1. Explain that rappelling is the fastest, safest, easiest means of descending steep terrain, but that it requires a solid anchor and strict attention to detail.

2. On an open slope with no danger of falling, demonstrate and have students practice the following rappels: (At the Course

Lesson Plan: Rappelling (continued)
2. (continued)

Director's discretion, this exercise may be done without a belay rope.)

a. Body or dulfer: Requires no slings or carabiners as the descent is slowed by friction of the rope against clothing. Padding is needed for hip and shoulder to prevent burns on long and steep rappels. Speed is controlled entirely by the downhill "braking" hand, but the uphill hand should grasp the rope high during descent to keep the body upright.

b. Diaper sling (or swami belt) and carabiner: Requires heavy shoulder padding to prevent burns, plus strict precaution against snagging clothing or long hair.

c. Diaper sling (or swami belt) and friction brake (brake bar, figure-of-eight descender, or six-carabiner brake): requires flawless manipulation of a gadget or two, plus precaution against snagging clothing or long hair in the brake. This is by far the most comfortable and most commonly used type of rappel.

Lesson Plan: Snow Climbing

1. Use of feet. (Demonstrate and practice.)

a. Kickstep with toe. Explain reason for hard toe on boot. Lift leg with knee bent, swing naturally into slope with force.

b. Kickstep for traverse. Step down, packing step with heel. Toe pointing out slightly toward valley.

c. If surface is hard, place feet as flat on surface as possible. If too steep, edge on inside of boot.

d. Plunge step down-kicking heels, down and in.

e. Self-arrest without an ice axe. Dig in heels and elbows or fingers and toes.

2. Use of ice axe.

a. Identify parts: the head, adze, pick, shaft, wrist loop, and spike.

2. (continued)

b. Hold in the uphill hand, thumb under adze, pick pointing in toward hill.

c. Place close enough to body to be of use in balancing. Emphasize the importance of thrusting the spike and shaft firmly into the snow when using the axe for support.

d. To self-arrest:

(1) One hand grasps the head of the axe as in b. and holds it just above the climber's shoulder; the other hand grasps the shaft just above the spike to keep it from digging into either the snow slope or the climber's groin.

(2) Press weight on ice axe gradually; raise up on toes and left arm.

e. Demonstrate and practice self-arrest on both sides and with packs.

(1) Practice on a slope as steep, and as hard as one where a fall would be likely to occur. Use the protection of a climbing rope, anchored at both ends in a "J" configuration, where an ineffective arrest would be hazardous.

(2) Engage in exhaustive practice, to develop a habitual physical response to slipping; more than simply an understanding of the self-arrest, and an ability to do it several times in a controlled class situation.

(3) Discuss with students the decrease in effectiveness of their self-arrest in actual falls, due to the added elements of; surprise, fear, heavy packs, fatigue, carelessness, frozen snow, steep slopes, inadequate runout, protruding rocks, and the somersaulting of a real fall.

f. Demonstrate and practice sitting and standing glissades. (Use a slope with a clear runout if possible; otherwise protect with a belay.)

3. Demonstrate and practice snow belays. Discuss the limitations of the various techniques and explain that snow belays are generally much less secure than belays on rock.

Lesson Plan: Ice Climbing

1. Explain the use and the hazards of ice axes, hammers, and crampons.

2. Demonstrate on safe and very gentle slopes how to walk with crampons, ascending and descending, keeping all points in the ice. Show how to avoid catching crampon points in footgear of the opposite leg. Have students practice.

3. Demonstrate and practice French technique using crampons and ice axe, ascending and descending. Belay with top rope if falling hazard exists.

4. Demonstrate and practice front pointing using axe and hammer. Belay with top rope.

Safety Policy: Expedition

1. Instructors will accompany training expeditions.

2. Training expeditions will be appropriate for the environment.

3. As a minimum, training expeditions will include instruction and practice in:

   a. Map reading and navigation
   b. First aid
   c. Basic mountaineering/campcraft
   d. Mountain safety
   e. Emergency procedures

4. Expedition groups will not divide except in an emergency or unless approved by the instructor.

5. Each group must carry a compass, flashlight, map, fire-building equipment, and first aid kit.

6. Each person will be dressed suitably for the prevailing and anticipated weather condition and will carry a whistle.

7. Each expedition group will file an expedition plan with the Course Director before departing.

8. The minimum number in a student group shall be four.

Safety Policy: Final Expedition

1. This will be a period of three or four days in which participants, in minimum groups of four, will travel unaccompanied by the instructor.

2. The briefing for the Final Expedition should be made by the Course Director or his delegate and must include all restrictions and emergency procedures.

3. A check system must be set up such that the safety of the group can be ascertained every day. Any reliable communication system can be used for this (a written message, personal contact, etc.).

4. There will be at least one accomplished student capable of assuming leadership in each group.

5. The selection of the routes will take into account the safeness of the terrain, the weather, the time of year, and the availability of checkpoints and the problems of evacuation or escape in case of emergency.

6. Routes should be of reasonable length and must be through terrain previously known to and reconnoitered by the instructors involved in the selection or approval of routes.

7. The routes and checkpoint times as well as an emergency search and rescue plan will be on file and ready to be implemented immediately.

8. There will be an instructor assigned to each group to check the equipment and to make sure all rules, restrictions, objectives, and emergency procedures are clearly understood. The instructor will also debrief the group on their return.

9. The number of students per group will be no less than four. The maximum number depends on the number of competent student leaders available.

Procedures

1. Expedition plan will include the following considerations:

   a. Familiarity with the terrain
   b. Weather conditions, current and forecast
   c. Abilities of expedition members
   d. Adequacy of equipment/clothing of each member
   e. Group structure: leader, safety, compatibility
   f. Proposed routes and checkpoints
   g. Emergency procedures/escape routes
   h. Provision for maintaining expedition log

2. Self-reliance cannot be instilled if the instructor merely escorts students through the mountains. Students should

participate in formulating daily plans as much as possible and they should be aware of the value of always having a rough itinerary of any mountain trip known by someone who is not a participant.

3. Emergency procedures

   a. Students must have the base phone number with them written in their journals and a dime available for phone calls.

   b. Expedition briefings are to include discussion of contingency measures for accident and injury at the various parts of the expedition route, information as to what help is available, and what to do if the instructor is incapacitated.

   c. Students going for help in an emergency should not go alone.

4. Students will be briefed on the dangers of the Colorado Rockies.

   a. Lightning is an indiscriminate killer of anyone who is in the wrong place at the wrong time. Lightning hazard is greatest during thunderstorms which are most common on summer afternoons and evenings. The electrical discharge always follows the path of least electrical resistance which makes high promontories and isolated trees particularly hazardous. Prevention centers around:

      1) Planning all peak climbs with an early enough start to be back in a valley or low slope by early afternoon.

      2) Getting off ridges, high cols, and hilltops at the first sign of build-up thunderheads.

      3) Avoiding the shelter of isolated trees and of overhanging rock walls.

      4) If caught out, get off high places and squat down on boot soles or sit on dry rope or pack.

   Persons injured by lightning may need treatment for cessation of respiration, cardiac arrest, and burns.

Expedition, Procedures (continued)

b. Snow slopes. The chief danger of snow slopes is that a very serious fall can easily take place because of a single misstep on a very easy snowfield. Students must be taught to self-arrest before negotiating any slopes where a fall could be serious. Ice axes must be used and hard hats worn on all snow slopes.

c. Avalanches. Old summer snow is usually highly stable, and summer avalanche danger is significant only from melting snow cliffs or following a snowstorm. Snow cliffs are easily avoided; the danger of avalanche after a heavy snowfall may persist several days, and steep valleys must be avoided. Fortunately, heavy snows are not common in Colorado in June, July, and August.

d. Fast rivers. Many streams can be easily crossed by rock-hopping, but this should not be attempted if a slip would be serious. Waist bands should always be released for such crossings so that the pack can be readily thrown off if a slip occurs. Wading (other than on extremely easy crossings) or zip-line crossings must not be attempted except as an activity arranged with the Course Director. Never cross a river using the technique whereby the person in the river is roped up to a belayer on the bank. Cross early in the day; streams rise when the sun begins to melt the snow.

e. Loose rock. Students may rock climb only where the area has been previously cleaned of loose rock by staff. Loose rock will be encountered, however, on many peak climbs and at other times on expeditions. Students must be instructed to:

1) Always wear hard hats when on gullies or slopes of loose rock.

2) Avoid knocking or throwing rocks down.

3) Shout "rock" whenever a rock falls.

4) Look up to see and avoid a rock falling from above. If the rock is too close, it is best to duck without looking up first.

f. Cold. Hypothermia is more dangerous than frostbite in the summer. Students should be familiar with both (section on first aid) and with the required clothing and equipment (section on equipment issue).

Expedition, Procedures (continued)

g. Storms. Techniques to be used to move across country in periods of severe weather conditions.

Lesson Plan: 3-Day Training Phase

1. Preparation (the night before)

   a. Check maps and all necessary equipment and clothing.
   b. Go over the proposed route with your group.
   c. Review pertinent training, use and care of equipment, etc. Re-emphasize dangers of white gas stoves at this point.

2. Breakfast

   a. Cook in groups of three.
   b. Lay out food.
   c. Divide work in cooking.
   d. Clean utensils with sand, gravel, dirt.
   e. Perfect clean-up of area, including short lecture on litterbugging. Burn small pieces of paper, etc.
   f. Lecture on sanitation:
      1) Elimination or urination away from streams.
      2) Use snowballs or smooth sticks or stones instead of toilet paper.
      3) Keep dishes and utensils clean.
      4) Wash hands before eating.
      5) Pack out all unburnable non-biodegradable refuse.

3. After breakfast

   a. Packing and adjusting packs.
   b. Patrol organization.
   c. Lecture on blister control.
   d. Time Control Plan for day.
   e. Climate Control Plan for day.

4. After first half hour of hiking, stop and check feet for hot spots. Discuss:

   a. Rhythmic breathing.
   b. How to walk.
   c. Clothing adjustment: "The best way to stay warm is not to get hot."

Expedition (continued)
Lesson Plan, Training Phase (continued)

5. After first two hours

   a. Introduction to solo
   b. Introduction to plants and flowers
   c. Introduction to geology
   d. Point out wildlife - animals and their sounds, tracks, and sign.

6. Lunch or first water after lunch

   a. Both feet in water. Inspect for blisters. Review blister control.
   b. Orient patrol on map. Identify terrain on map. Be sure at this point everyone can tell the difference between stream bed and ridge.
   c. Review rhythmic breathing and walking, stressing conservation of energy.
   d. Patrol procedure in loose rock country
      1) The Zig Zag
      2) Stepping on stones
      3) Close together on scree (Illustrate at the first terrain opportunity).

7. Evening camp

   a. Proper wearing of clothes to avoid evening chill
   b. Picking campsite
   c. Picking campfire site
   d. Firebuilding and cooking lessons. Make sure each eats adequately. Plenty of liquid is vital.
   e. Putting up plastic. (Prepare for wind and rain.)
   f. Sleeping bag use and care
   g. How to sleep
   h. How to store equipment and food for night and prepare morning fire.
   i. Campfire discussion - review of day. Orientation for tomorrow. Mountain appreciation

8. Morning of second day

   a. Rise at dawn
   b. Supervise cooking breakfast. Correct all errors. Check that students eat and drink adequately.
   c. 8 a.m. deadline leaving camp

Expedition (continued)
Lesson Plan, Training Phase (continued)

9. After first half hour

   a. Discuss solo at every opportunity.
   b. From now on all day every day is continuous map reading. The student must know where he is on the map, where he is going, where he has been, be able to interpret map and all features of map. Learn to orient map first without compass, if possible, and then by compass.
   c. Take special interest this day on neatness of packs, balance, and carrying of packs.

10. After first two hours or earliest opportunity

   a. Swim, or bathe complete body.

11. During the day

   a. Point out terrain
   b. Continuous map reading
   c. Pointing out animals and flowers, trees, geology, etc.
   d. Emphasis on solo education
   e. Discussion of fire danger
   f. Discussion of multiple use of forest and rights of stockmen, fishermen, tourists, etc.

12. Evening

   a. Camping, cooking
   b. Personal cleanliness
   c. Care of clothes and equipment
   d. Rations and their selection
   e. Evening campfire and group discussion

13. Third day

   a. Rise at dawn
   b. Cooking and camping
   c. Leave at 8 a.m. at the latest
   d. Special emphasis on patrol organization, pace setting, route picking, interval, loose rock country, flora and fauna, map reading, and review.

14. From the above trip the following is expected of each student:

   a. Know how to read a map and find his way by a map
   b. Camp location selection, firebuilding, cooking, some judgement on rations, how to conserve energy, how to take care of equipment. How to organize a patrol. How to

walk, eat, and breathe. Personal cleanliness and camping sanitation. Respect of other people's rights in the forest. Identification of some flora and fauna. More appreciation of the outdoors.

15. Note

a. To help develop the student's judgement he must be told why he is being taught each technique.

16. Information to be presented to the students prior to leaving for the mountains:

a. Techniques for keeping warm

1) Eat something; digestion increases heat production. Carbohydrates, especially sugar, are best.

2) Drink hot fluids. These are excellent for re-warming, but the effects tend to be short-lived unless the drinks contain sugar.

3) Exercise increases heat production in proportion to the energy expended. (Shivering is an involuntary mechanism which has the same effect.)

4) Insulation prevents loss of body heat. Clothing, sleeping bags, and sleeping pads all have small pockets of trapped air that retain body heat. A head covering is particularly important as the abundance of blood vessels in the scalp permits high heat losses. Wind and wetness greatly decrease the insulating power of all clothing materials; wool retains more of its insulating power when wet than any other common clothing material. An outer windproof garment is necessary to reduce convective heat losses under windy conditions.

b. The importance of eating and drinking adequately

1) Eating is important for keeping warm, for maintaining the ability to perform strenuous work, and for maintaining nutritional balance. Although mountaineering generally produces a weight loss in people who are not already fairly trim, students anxious to lose weight must be strictly admonished against trying to limit their caloric intake on expeditions.

2) The need for fluids increases with altitude and exertion. Thirst cannot be relied upon to always signal the need for fluids, and it often takes a deliberate effort to replace the two to three quarts of water that the body requires each day in the mountains.

c. The importance of staying together as a group

1) Whenever a number of people with differences of strength and conditioning are traveling together, there is a marked tendency for the group to become more and more strung out as the day progresses. If this is allowed to happen, all communication and control tends to break down.

2) Experienced mountaineers usually prefer to travel in pairs or trios. With Outward Bound patrols, it is imperative that the entire group stay together for the first day or so on the trail. As training, experience, and the instructor's assessment of student abilities progress, supervision is gradually relaxed. A suggested progression for this would be:

a) Instructor points out a visible and easily recognizable objective such as a stream or col and instructs patrol to stay together but travel there without him and meet him there.

b) As above, but with an objective not visible from the start, but easily located on the map and in the field.

c) It is permissable to disperse patrol into groups as small as four on the trail upon occasion.

d. Weather: Specific instructions will be given each student in self-protection against weather hazards. These will include:

1) Clothing appropriate to expected weather conditions

2) Types of shelters available in a particular area, or that can be erected by the students appropriate to weather expected.

3) Survival techniques for use in cases of:

   a) Hyperthermia
   b) Hypothermia
   c) Frostbite
   d) Serious shortage of drinking water

4) How to build a fire in:

   a) Wind
   b) Precipitation

PEAK CLIMBS

Safety Policy

1. All peak climbs must be approved in advance by the Program Director.
2. At least one staff member who is familiar with the route must accompany all peak climbs.
3. Students must be briefed on the route and peak climbing procedures.
4. A sleeping bag, tarp, and extra food and drink must be taken to the summit in case of emergency.
5. Hard hats will be worn.
6. Students will not lead roped climbs.
7. The maximum number of students on a rope is 4.
8. Peak climbs are scheduled so as to come after rock climbing in the course.

Procedure

1. Teach students the following peak climbing procedures:
   a. Stay out of the fall line of those above.
   b. Start early to avoid afternoon thunderstorms.
   c. When crossing terrain which is easy, unexposed, and does not warrant a belay, it may be safer and faster to unrope rather than carry coils.
   d. Take special care to avoid dislodging rocks with the belay rope.
2. Teach students the following techniques:
   a. The use of fixed ropes with a prussik sling
   b. How to move continuously when roped by carrying folds of rope.
   c. Hasty belays and the use of rock projections as natural anchors.

BACKCOUNTRY ETHIC

Rationale

Outward Bound brings large numbers of people into the backcountry each year. Instructors have a special responsibility to inspire each student with an understanding of the need for careful use of the environment.

It is also the role of the instructor to instill in the student a commitment to these principles of conservation. Thus, when the Outward Bound student returns to the backcountry for an independent adventure, he/she will respect and practice this ethic.

Goal

To increase understanding of how we fit within the wild systems: what our influence can be, and how to leave little evidence of our visit.

Lesson Plan

Within the first two days of the course, the following topics will have been outlined by the instructor. These attitudes about conservation of the backcountry are best reinforced during the remainder of the course by both the word and example of the instructor.

1. Choosing the Route

    a. in the spring, travel across snow and rocks as much as possible; mountain soils are very fragile and subject to erosion during the thaw.

    b. use existing trails when available; do not further erosion by cutting across switchbacks; hike in single file to avoid creating multiple lanes.

    c. for traveling across country without trails (especially tundra or meadow areas), the group should fan out rather than walk one behind the other; ten people tramping in a row can crush fragile plant tissues beyond recovery and create channels for erosion.

    d. on first ascents or when bushwhacking, leave no markers or signs; you enjoyed being first: allow others the same pleasure.

    e. consider that lug-soled boots can tear and break open the fragile tundra surface; once there is an opening, wind

Backcountry Ethic (continued)

1. (continued)

e. (continued)

action can continue to unravel the ground cover; tennis shoes are to be recommended for tundra hiking, whenever practical.

f. travel quietly in the backcountry; avoid clanging cups and cook pots on the outside of backpacks; noise pollution lessens the chance of seeing wildlife and also lowers the enjoyment of other hikers.

g. any bird or animal which is spotted should be left alone; enjoy watching wildlife from a distance and respect their need for undisturbed territory.

h. avoid removing items of interest (such as rocks, flowers, wood, antlers, etc.); leave these in their natural state for others to see.

i. pick up any litter along the route; have one pocket of your pack available for trash.

2. Locating a Campsite

a. use an existing campsite whenever possible, in order to minimize human impact.

b. choose a "hard" site on sandy terrain or the forest duff rather than the lush but delicate soil of meadows or streamsides.

c. camp back away from the edge of lakes; too many people camp right on the shore, destroying fragile plant communities and cutting animals off from their supply of water.

d. consider the effect of your presence on other hikers; to enhance their wild country experience, camp out of sight of trails.

e. if other parties are close to where you want to camp, choose your campsite so that terrain features insure privacy (vegetation or small knolls can cut noise by a great deal).

f. keep noise level low at the campsite, out of respect for any nearby campers.

Backcountry Ethic (continued)
2. (continued)

g. leave the site as you found it; avoid trenching, brush removal, cutting boughs, picking flowers, etc.

h. whenever possible, camp in a different spot each evening; evidence of human impact is more difficult to erase when you stay more than one night in a single location.

i. check with local public land management agency (i.e., Forest Service or BLM) about which areas may be receiving high impact from campers and hikers; then plan your trip to avoid these areas which need no further human influence.

3. Fires

a. due to the small amount of rainfall in Colorado, wood is a limited resource. The dead and decaying wood is needed by the forests to replace soil nutrients and to provide organic matter. In many areas, wood is being used faster than it is grown. Therefore, fires should be considered a luxury to be used only for special evening discussions, in times of unusual cold or wet conditions, and for teaching the art of fire building.
A fire certainly is not necessary every evening.

b. use a small backpacking stove for cooking all meals.

c. have fires only in areas with plentiful wood and rapid resource replenishment. (For example, it would have much less impact to use firewood from a stand of lodgepoles than to use wood from close to timberline.)

d. build only small "squaw" fires which people can gather closely around, rather than bonfires.

e. use an existing fire circle, if available.

f. to build a fire in a new area:

(1) choose a spot away from overhanging branches, tree roots or reflector rocks

(2) carefully remove sod covering an area; keep this sod moist and protected; use it to cover fire scar when breaking camp.

(3) dig a hole down <u>through</u> the humus layer and <u>into the mineral soil</u> for a base for the fire; humus soil can

Backcountry Ethic (continued)
3. (continued)
f. (continued)
(3) (continued)

smoulder and burn underground and surface elsewhere to cause forest fires; make sure that the hole is substantially larger than the planned fire.

(4) take firewood first from loose branches and sticks on the ground and only secondly from downed trees; avoid taking limbs and branches from living trees to keep a natural appearance to the campsite and prevent damage to the tree.

(5) fire must be so thoroughly out that it is cold to the touch; be sure there are no smouldering roots or humus; gray coals and finely crushed black coals may be either buried or dispersed on the soil; do not dispose of ashes in any water source.

(6) replace soil and sod or ground cover; scatter the fuel you have gathered but not used; any scarred rocks should be turned black side down or dispersed.

(7) refer to section on "Campcraft" for hints on the mechanics of building fires.

4. Latrines

a. all human diseases can be transferred through our wastes; it is possible to carry dormant germs and be unaware of it.

b. have one spade for every eight to ten people.

c. for individual comfort stops, a person can make a small hole, taking care to dig down into the humus layer.

d. for the overnight use of a group, locate the latrine on a hillside at least 300 feet from any stream or lake or marshy area, so that the human waste will be filtered through soil and sand.

e. dig the trench down into the humus (organic) layer of the soil; this is where the decomposers are active; the depth will vary from 4 to 10 inches, depending on soil conditions.

f. carry out toilet paper, or burn it in the trench, being careful to avoid starting fires around the latrine; when possible, use snow or other natural toilet paper substitutes (such as smooth stones, sticks, conifer cones, leaves of carefully selected plants).

Backcountry Ethics (continued)

4. (continued)

   g. keep the spade by the latrine, and spread a layer of dirt over the latrine after each use.

   h. when leaving campsite, replace the layer of sod and cover with a large rock or log to prevent animals digging up the area.

5. Washing

   a. do not use any soap in streams or ponds or lakes for any purpose; even biodegradable detergent causes pollution to drinking water.

   b. use biodegradable soap, or Ivory, because the soil can break these down more rapidly than regular soap.

   c. to clean dishes, clothes, or self, wash in a pot, well up on shore and away from water supply; pour out soapy water on soil that can filter out the soap and break it down.

   d. the best soil for breaking down soap is vegetated and absorbs water slowly; sand, which absorbs water rapidly, does not break soap down or filter it out.

   e. too much soap in one place overtaxes the ability of any soil to break down the soap; if a group of people are all washing at the same time, they should spread out and dispose of the soapy water in scattered places.

   f. do not use soap or dispose of soapy water in tundra areas, the soil layer is too thin in the tundra to act as an effective filter, and much destruction of delicate plant life can result.

   g. the Forest Service recommends that the distance for disposing of soap is 300 feet from the water source. (The distance equals the length of a football field.)

6. Trash

   a. pick it up - carry it out!

   b. carry out all cans, glass, foil; remember that aluminum can be recycled; do not bury any trash; paper may be burned or carried out.

Backcountry Ethic (continued)
6. (continued)

c. nothing should be left behind; food scraps like egg and peanut shells and orange peels take a long time to decompose, and serve as visual pollution for other hikers.

d. careful food planning should prevent any left-over food; but if there is any, it should be buried in the latrine.

e. mountain streams do not have the decomposers necessary to break down food scraps, so be careful not to get any scraps into the water sources.

Refer to section on "Backcountry Ethic" for campcraft-related information.

Lesson Plan

1. Time control: Give yourself plenty of time to make yourself comfortable. Camp before dark, before you are too tired to eat properly and get needed rest.

2. Site selection: Consider the following:

   a. impact on alpine plant and animal life
   b. availability of water
   c. protection from wind, flooding, standing dead trees, falling rocks, and avalanches
   d. flat area, free of rocks

3. Division of labor: Group tasks should come first. One person should volunteer or be assigned to each of the following:

   a. bring water
   b. fill stoves with fuel and begin heating water
   c. organize food, plan menu, cook
   d. erect shelter and lay out sleeping bags
   e. if making fire that evening, gather wood and make fireplace

4. Fire building

   Explain that fire is not possible without air, fuel, and heat and that a fire is most readily started by applying heat (usually a lighted match) to a tinder, which is a combination of air and a good fuel. As a fire tends to burn upward, the flame should be started near the bottom of the kindling fuel. Fires should only be built on a site which has been scraped down to mineral soil. Avoid leaving fire-scarred stumps or reflector rocks. Wilderness fire sites must be thoroughly cleaned up and camouflaged after use.

   Fire-building hints:

   a. select a dry, sheltered site where fire cannot spread.

   b. Use dry tinder (dry grass, fibrous inner bark, tiny twigs or long, thin wood shavings, pine resin); have a big handful before lighting.

Campcraft (continued)
4. (continued)

c. have plenty of kindling on hand.

d. wet wood will dry out and burn when placed on a fire, but it is not suitable for fire starting. Under wet conditions dry twigs may be found beneath thick spruce trees or other cover, or it may be necessary to split sticks to use the dry inner wood.

e. wet matches may be dried by rolling them between the palms.

f. coals may be preserved many hours if necessary by banking the fire with green logs or a punky decayed log.

g. for the last hour of fire use, burn the charred ends of your sticks and logs instead of adding fresh fuel. Stir fire and position charred fuel fragments on top of flame or coals to burn them down.

5. Equipment and clothing

When students receive their equipment packs, the instructor must go through the entire issue with the patrol and explain the use of each item of personal and patrol gear.

Explain:

a. the importance of wool: Wool loses less of its insulating power when wet than any other common clothing material.

b. the layer system for warmth: Multiple layers permit easy adjustment of insulation.

c. the necessity of protection from wind and rain: Moving air enormously increases heat loss by convection: All clothing loses much of its insulating power when wet. (Students should be taught that wet clothing may be wrung out and put back on as an outer layer over dry clothing if necessary.)

d. The importance of a head covering under cold conditions: excessive heat loss from the scalp is possible because of the large number of superficial blood vessels.

e. The importance of the hard hat: Necessitated by the seriousness of head injuries which might occur in rugged mountain travel.

Campcraft (continued)
5. (continued)

f. The fitting and care of foot gear: Most students will have received fitting and breaking-in instructions by mail. Others may have to be fitted at the base. Boots should be roomy enough for at least one pair of light socks and one of heavy wool. Leather boots should never be dried by heat.

6. Personal clothing

Boots, medium weight to heavy, preferably with vibram soles
Heavy wool socks - at least one pair on plus one spare pair
Light socks - at least one pair on plus one spare pair
Heavy wool pants or knickers OR wool long johns plus jeans
Long-sleeved wool shirt
Wool sweater (down sweater is okay if shirt is heavy wool)
Windproof water-resistant parka with hood
Wool mittens
Wool cap

7. Personal equipment

Food - each individual must have at least some trail snacks at all times
Sun glasses
Sun-protective cream*
Matches in waterproof container
Knife
Whistle
Hard hat
Sleeping bag, ensolite, ground cloth
Sling rope*
Carabiners (2)*
Ice axe*
Poncho or tarp*

8. Group equipment:

Map
Compass
Flashlight (spare bulb and batteries recommended)
First aid kit
Cooking pot*
Small shovel or pick*
Climbing rope*
Parachute cord*

*Under special circumstances, such as certain final expeditions, these items may be deleted at the Course Director's discretion.

Campcraft (continued)

9. Shelter preparation

   a. instructor should help students rig ponchos and tarps for rain shelters, particularly the first few nights. Teach how to tie the taut-line hitch.

   b. choose sandy or forest duff areas; avoid camping in delicate meadows or otherwise crushing plant life.

   c. area must be flat to prevent rolling downhill.

   d. anticipate wind direction, slope shelter toward wind.

   e. in rainy weather, tight v-shaped bivouac shelters give maximum shelter.

   f. leave plenty of open space for ventilation to avoid condensation.

   g. in cold, dry weather, a high open fly sheet with the fire in front gives added warmth.

   h. erect long poles to give your shelter rigidity (never cut green timber).

   i. take plenty of 1/8" parachute cords 30 feet: two 10' lengths for the ends and four 2½' lengths for the corners.

10. Cold weather sleeping:

   a. always use a sleeping bag liner for warmth and cleanliness.

   b. place ground sheet under ensolite pad to keep it clean.

   c. fluff up sleeping bag to get air in bag. It is the dead air space that gives you insulation and keeps you warm.

   d. take off your outer clothing and use it as a pillow. This is also a sure way to keep it dry.

   e. if weather is particularly cold, wear dry wool socks, long underwear, sweater and wool cap to bed. More heat can be lost from your head, if exposed, than from the rest of your body. Pull parka, extra clothing over your body.

   f. several people sleeping close together can keep each other warm.

Campcraft (continued)
10. (continued)

g. never permit sleeping bag to get wet from rain or snow.

h. keep flashlight available for use.

11. Packing and lifting packs

a. keep center of gravity high and as close to back as possible.

b. keep items that may be needed accessible; i.e., cups and spoons, sun cream, canteens, rain gear, first aid kit, flashlight, etc.

c. when lifting or lowering a heavy pack, balance it on the knee as an intermediate step between back and ground.

d. take care when packing such items as honey, oil, fuel, toothpaste.

e. do not dump pack or sit on it.

f. protect pack and contents from any sharp item you may be carrying.

12. Food planning

Because of the amount of energy expended in mountain travel, food planning takes on increased importance. Hiking up a steep trail with a 40-pound pack burns the body's fuel at a rate of 500 to 600 calories per hour, the equivalent of a lump of sugar every 80 seconds.

Dietary needs require a balanced diet of protein, fat, and carbohydrate. Vitamins and minerals are required over any protracted length of time. When planning your menu consider the following:

a. Protein: needed for maintenance and building of body tissue, and "staying power". Meat, fish, cheese, milk, eggs, beans, nuts.

b. Fat: for basic energy, less easy to digest. Margarine, butter, bacon, (use the fat), nuts, cheese, eggs.

c. Carbohydrate: for quick energy, easy to digest. Sugar, jam, candy, cereal, bread, rice, macaroni, dried fruit, vegetables.

Campcraft (continued)
12. (continued)

Eating hints:

a. eat two hot meals per day.

b. eat lightly but frequently. Altitude can affect your appetite and digestive system.

c. nibble between meals. Carry nuts, candy, dried fruit in your pocket.

d. light a fire immediately on making camp. Get water boiling and food started before pitching camp.

e. At the end of a day's hiking or climbing, start a meal with hot, sweet tea, hot jello or hot lemonade. This is a stimulant and an energy food that will help you to eat if you are tired.

f. cook one-pot meals for efficiency. Stews, casseroles, glop, gorp.

g. avoid burning. Take a little longer, keep fire low. Carbon has little food value.

h. experiment!

i. someone needs to volunteer or be appointed to clean up group cooking gear. Rinse very carefully. Soap is the best laxative known.

j. individuals should be responsible for the cleanliness of their own personal eating gear.

k. plan breakfast the night before and lay out food. Fill billy cans with water.

l. if snow is being used for water, melt it the night before.

13. Water purification

Check mountain water for possible pollution, particularly from sheep grazing above. Use halazone or boil ten minutes to purify water if in doubt.

Camperaft (continued

14. Sanitation and personal hygiene

Because of the need to prevent deterioration of the environment and spread of disease, the following precautions must be taken:

a. cooking and eating utensils and hands must be clean for every meal.

b. all human waste and uneaten food must be disposed of by burying away from camp and at least 300 feet from any stream or body of water.

c. soap must be kept out of lakes and streams. Washing with soap should be done in a pot, and the wash water discarded 300 feet from the stream. Soaps should be biodegradable.

d. toilet paper must be burned. Every student should be taught and encouraged to substitute snowballs, smooth stones, and smooth sticks for toilet paper.

e. all non-burnable, non-biodegradable refuse must be packed out. Students should be encouraged to carry out litter left by others.

f. carry a toothbrush.

g. when possible camp early enough to bathe and dry off in the sun.

h. socks and underwear should be washed regularly.

i. treat blisters, bruises, and cuts with care to prevent infection and aggravation.

15. Breaking camp

a. much time can be lost by the inexperienced camper in breaking camp.

b. it takes two hours to get up, eat, pack, clean up and move out. Plan on this and try to start the day on time.

c. firewood, water, and food should be laid out the night before. Each person should be assigned a group task; i.e., cooking, taking down shelter, clean up, etc., as well as their own personal packing.

Campcraft (continued)
15. (continued)

d. clean up must include burning of all paper. Crush cans and aluminum foil and carry them and plastic bags out of the wilderness. Clean up the mess of others.

e. orient group to the task of the day. Make sure everyone is familiar with the route. Have morning meditation or prayers, if possible. Leave camp together as a group.

f. on major ascents, the group should move out of camp by first light.

Lesson Plan

1. The basic essentials of mountain orientation or navigation must be learned. Safety will depend on it. Everyone should know:

   a. Where they are at all times.

   b. How to plan a route from one place to another by the fastest, safest way.

   c. How long a route will take.

   d. How to get to a destination and return safely without getting lost.

   Make instruction practical, conduct it in the field; i.e., at the beginning of a day's hike, during lunch breaks, at suitable passes and promontories, from the summits of peaks, etc. Keep theory to the minimum required to master practical problems.

2. The instructor should point out significant map features:

   a. Margin references (name, date, scale, latitude and longitude, names of adjacent quadrangles, contour interval, magnetic declination).

   b. Man-made features (buildings, roads, mines, power lines, etc.). These are printed in black.

   c. Water symbols (streams, lakes, springs, etc.). These are printed in blue.

   d. Vegetation features (forests, brush), printed in green.

   e. Elevation features. Contour lines are printed in brown and depict the shape of topographic features. Every fifth line is printed heavier for easier visualization; Elevations are printed on these heavy "index" contours.

3. Contour lines are usually difficult for students to learn to interpret. The following may help:

3. (continued)

a. A contour line represents an imaginary line of constant elevation on the earth's surface.

b. If a person walked along a hillside, going neither up nor down, his path could be called a contour line. Seen from an airplane, this path would conform to one of the brown lines on the map.

c. The elevation difference between adjacent contour lines remains constant -- the "contour interval" indicated on the lower margin.

d. If you walked a distance of a mile up a steep hillside you would gain more elevation than if you walked a mile up a gentle hillside. Thus, you would cross more contour lines on the steeper slope. The more imaginary contour lines per mile on the ground the closer together they will be drawn on the map. Thus steep slopes can be easily recognized by closely spaced contour lines on the map.

e. Contour lines always close around peaks.

f. Contour lines make a "V" pointing upstream where they cross valleys; on ridges they make a "V" that points outwards and is usually irregular.

g. Have students sketch a contour map of a small area or the top half of a rock, log, bottle, or other object.

4. Explain that the map is drawn with the top oriented in the direction of true north, the earth's axis of rotation. The compass points toward the magnetic pole northwest of Hudson Bay. In Colorado the direction of the magnetic pole is around 15° east of true north. Thus a correction of 15° must be made when transferring directions from terrain (compass) to map (true north) and back.

5. Show how to orient the map by the following methods:

a. By compass. Place the Silva compass beside the magnetic declination arrow at the lower margin of the map and rotate the map on a flat surface until the compass needle points in the direction of the declination arrow.

b. By inspection, knowing your location on the map and having another identifiable map feature in view. Draw a line on the map between your location and the identifiable point and rotate map until the drawn line points in the direction of the feature on the land.

6. Have students orient map and pick out terrain features.

7. Point out and explain the important parts of the Silva compass (magnetic needle, direction of travel arrow, transparent base plate with scales, and rotatable compass housing scribed in degrees numbered clockwise).

8. Explain the correspondence between direction and bearing (East is 90^{o}, West 270^{o}, North can be taken as 0^{o} or 360^{0}, etc.)

9. Show how to take a magnetic bearing of an object by pointing the direction of travel arrow at the object, turning the housing until magnetic needle points to north on the housing and reading the bearing on the housing at the direction of travel arrow. Have students practice.

10. Show how to walk following a given bearing by setting the bearing on the compass, keeping the compass needle aligned with the housing, and following the direction of the travel arrow. Show how to follow a bearing through a forest by sighting on trees, and how to walk around an obstacle on a bearing by making four 90^{o} turns and counting paces.

11. Explain and practice how to transfer bearings by adding 15^{o} when transferring from compass to map and subtracting when transferring a map bearing to the field. (An easy way to convey this is to refer students to the direction arrows at the bottom margin and point out that although true east is 90^{o} from true north it is only about 75^{o} from magnetic north. Hence, magnetic bearings are less than true bearings by about 15^{o}).

12. Explain and practice how to determine map location by taking bearings on two prominent landmarks in the field, transferring the bearings to the map, and location of the intersection on the map of the two bearing lines.

Map and Compass (continued)

13. Have students practice these skills on an orienteering exercise.

14. Time control

    a. Figure the time it will take to move between two points:

        Basic formula: 2 mph on the flat plus 1 hour for every 1000 feet climbed. On descent figure ½ that time.

    b. Winter routes over snow should figure at least twice as long if conditions are good for snowshoeing or ski touring.

ZIP LINE AND GORGE CROSSING

Safety policy

1. The location, scheduling and rigging of crossings must be determined by the Course Director.

2. All crossings must be rigged with two ropes of 7/16" nylon. These ropes must be doubled for long crossings and all ropes must be tied separately.

3. The instructor of the first patrol to use the ropes must check the rope and knots and insure that the anchors are secure and no rope abrasion has taken place before it is used by students.

4. An instructor or assistant instructor must make the crossing first to check the knots and anchors on the other side and remain there to supervise the exit.

5. The instructor must supervise the knots, clipping-in, and actual crossing of each student.

6. All students must be belayed on a sliding safety rope.

7. Hard hats must be worn.

Procedure: Clipping in the zip

1. Using one end of a sling rope, tie a bowline around waist.

2. Tie a figure-of-eight knot in the other end so that the sling is about the length of the arm extended. Tie all the ends of all knots.

3. Place either a locking carabiner or two plain carabiners with gates reversed in the loop of the figure-of-eight knot and clip into the zip line. Lock the gate if using a locking carabiner.

4. Hold onto the figure-of-eight knot as you jump, not the carabiner.

Zip Line and Gorge Crossing (continued)

Procedure: Clipping in on gorge crossings

1. Use sling, bowline and figure-of-eight as above.
2. Participants must be clipped into both upper and lower ropes with separate body slings.

Safety Policy

The following rules apply to obstacles of such a nature that a fall from them would be serious:

1. An instructor will be present whenever practice on the ropes course is being undertaken.

2. The instructor must check all ropes and fittings prior to each use and report undue wear and tear to the Course Director.

3. All exercises will be demonstrated by an instructor before being attempted by students.

4. The performer will be safeguarded by a top rope, safety line, spotter or equivalent safety measure.

5. Relay students whom you are unsure of in terms of arm strength and balance.

6. No more than one person on each item at a time.

7. Long pants must be worn.

8. Remove potentially dangerous objects from pockets and belts.

9. Hard hats must be worn.

RUN AND DIP

Safety Policy

1. An instructor will "sweep" after the last group on the run.

2. Patrols will run as a group; no splitting.

3. Dip will be immediately after the run and before the body has had time to cool.

4. An instructor will supervise and regulate a dip at all times. When in water over participants' heads, dip will be supervised by an instructor with current Red Cross Senior Lifesaving card or equivalent, and the buddy system will be used.

MARATHON

Safety Policy

1. A marathon-type event will be a part of every standard COBS course.

2. The marathon will be scheduled late enough in the course to permit prior assessment of student's physical abilities and screening of potential medical problems.

3. Participants will be briefed on the objectives, the route and any hazards.

4. Check points and a staff sweep will be provided.

Procedure

1. The marathon route is to be determined by the Course Director, with due consideration for quick rescue capability and for the dangers of students getting lost, of damage to knees from running downhill, of damage to ankles from running over rough terrain in light footgear, and of students being out for several hours of heavy exertion at altitude with minimal protective clothing.

2. At the Course Director's discretion, the marathon may be started at a given signal (similar to a competitive race), or each individual may start more or less at his own convenience. The latter method has the advantage of de-emphasizing the competitive aspects. In any case, there should be an official clock whereby a student who wishes to know his time can arrange for this to be recorded.

3. Salt tablets and drinking water should be available to participants.

Safety Policy

1. The solo lasts no longer than three days and nights.

2. A staff member must be camped in the vicinity of the participants.

3. The Course Director must make sure that each student receives a preparatory briefing which includes:

   a. The boundaries of his area

   b. The location of the staff camp

   c. Emergency procedures:

      1) Go to nearest Outward Bound staff, if possible

      2) Otherwise, go to nearest person for help

      3) As a last resort, blow six blasts on whistle. Those hearing this signal should leave solo and provide help.

4. Each student must be checked not less than once a day by Outward Bound staff. Verbal communication is not mandatory but some type of visual person-to-person response such as a hand wave must be given by the student.

Procedure

1. Solo sites are to be selected by the instructor in an area approved by the Course Director. The location of each student on solo must be recorded on a map kept by the Course Director or Chief Instructor.

2. Each student is escorted to and from his solo site by his instructor.

3. Each student must have with him the following:

Solo (continued)

a. Whistle and matches for emergencies

b. Tarp or other shelter

c. Sleeping bag

d. Ground cloth

e. Adequate clothing, including wool pants or long underwear, wool shirt or sweater, and rain gear.

f. Food. This should be sufficient to prevent hunger from detracting from the solo experience. Colorado Outward Bound School is currently operating under a variance from National Safety Policy which permits students to go on solo without food. This variance puts additional responsibilities on the instructor:

> If a student wishes to go on solo without food the instructor must make sure that this does not jeopardize the student's health or safety.
>
> Furthermore, although partial fasting is to be encouraged, the students must not be pressured into leaving food behind.

(Remember that the idea is to have a strongly positive personal experience rather than to try to last three days without eating.) Suggested provisions: eight ounces of nuts or granola or gorp; ten or twelve trail biscuits; one container of honey; three packets of Wyler's.

Part III. Reports

Policy

1. Instructors and Course Directors will submit written reports on each course.

Procedure

1. The Course Director does the following:

   a. Prepares a course report as specified by the Program Director.

   b. Submits a brief evaluation of each instructor and assistant.

   c. Collects from instructors and submits to the office all instructor and student reports, accident, drop-out, and medical care forms, and thank-you letters from scholarship students.

2. The instructor does the following:

   a. At the end of the course, a report of one-two pages on all students under 18, as well as those from institutions and those who request written evaluation, will be written. Reports should be positive and meaningful and should incorporate, whenever possible, examples drawn from the course of how the student responded to the Outward Bound experience both as an individual and as a member of the patrol. These reports are sent to the students and to scholarship donors as well as to sending agencies and institutions, when these circumstances exist. Reports should be discussed with the students.

   b. Has all scholarship students write thank-you letters to those who have financed their scholarships.

   c. Has all students submit a course impression.

   d. Submits to the Course Director a brief critique of the course, including:

      i. Feedback to the office. What could the office do to make the course better?

      ii. Feedback to the Course Director. How could he/she be more helpful? Any suggestions to make the course run more smoothly?

Reports (continued)

iii. How do you feel about your performance as an instructor? What do you think you did best this course? Worst?

iv. Comment on how well you think the course objectives were met in your patrol. Any apparent changes in student attitudes? Personal development? Skills? Fitness? Interpersonal relations? What was the general student satisfaction level?

v. Any additional comments that might be helpful or pertinent.